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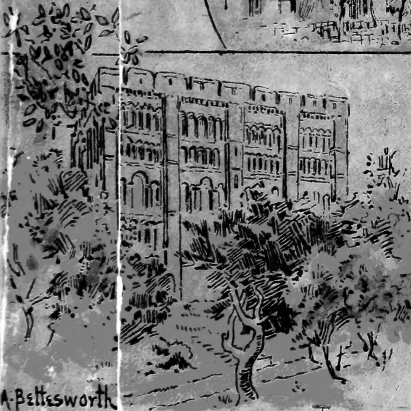


JARROLD'S' ILLUSTRATED  
GUIDE TO

# NORWICH CASTLE MUSEUM



PUBLISHED WITH  
THE SANCTION  
AND APPROVAL  
OF THE  
COMMITTEE



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# THE OFFICIAL GUIDE

TO THE

# NORWICH CASTLE MUSEUM /

BY

THOMAS SOUTHWELL, F.Z.S.

*Member of the British Ornithologists' Union, Vice-President of the  
Norfolk and Norwich Naturalists' Society, etc.*

*(Published under the Special Sanction of the Castle Museum Committee)*

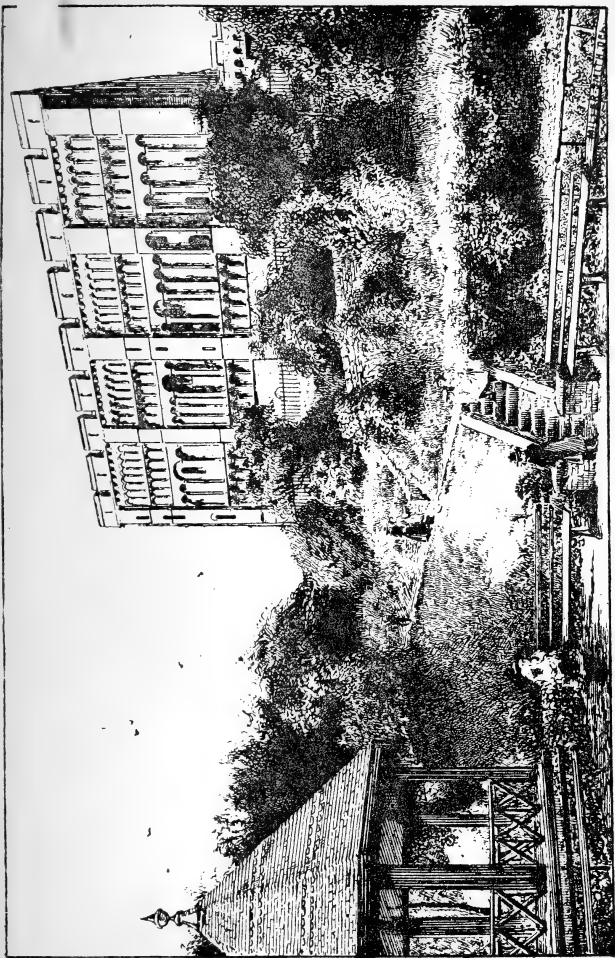
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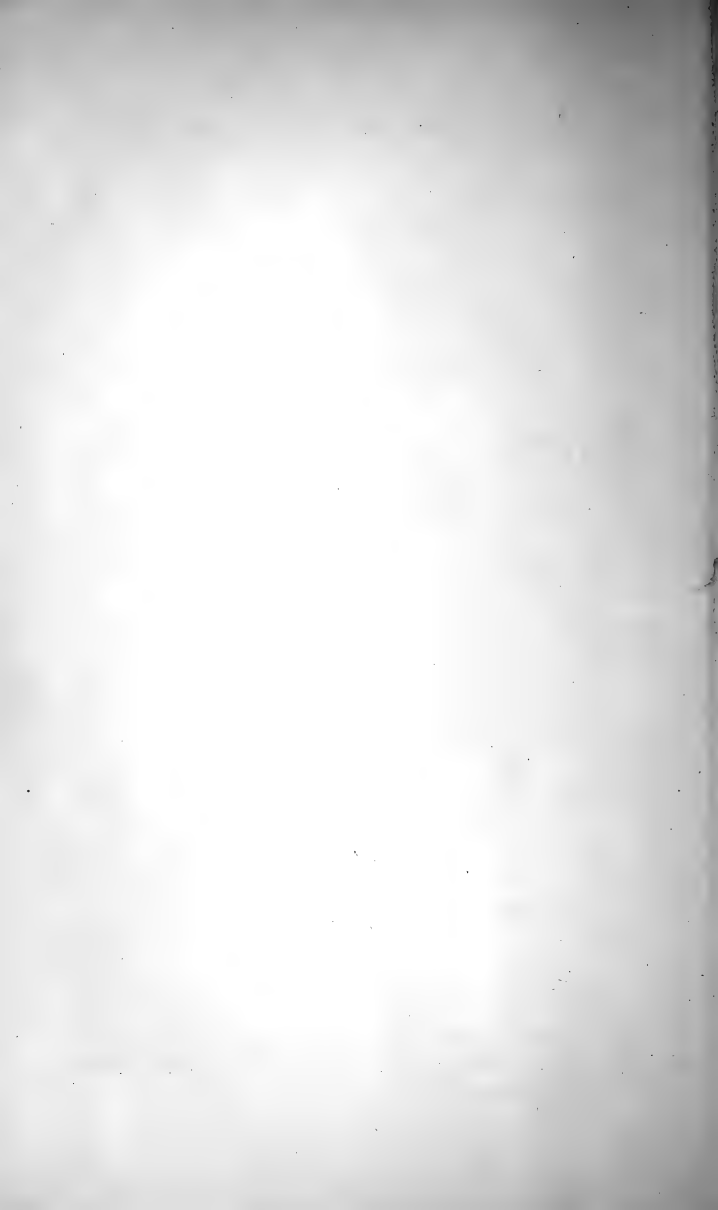
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THE KEEP SEEN FROM THE MOAT.



## INTRODUCTION.

THE frequent demand for a Guide Book to the Norwich Castle Museum has induced the enterprising firm of Jarrold and Sons to add yet one more to the useful series of such works which has been issued by them, and the Committee of the Museum, having given their consent and offered every facility for its production, the result will be found in the following pages, which it is hoped may be useful to those who visit the collections.

The removal into the spacious galleries in the Castle was of necessity so speedily effected, that the complete re-arrangement of the various collections on the most modern systems could not, at the time, be carried out, and one of the chief difficulties which the writer had to contend with was the unfinished condition in which some of the sections at present are ; to remedy this will necessarily be a work of time, and it is satisfactory to know that the task is gradually but surely approaching completion. In the Guide this re-arrangement has occasionally been anticipated, and the places of some of the objects named may not just at present quite coincide with those here assigned to them ; but it is hoped that no serious inconvenience in that respect will be experienced.

It only remains for the writer to thank those friends who have been so kind as to render him assistance in

his task. Mr. G. C. Eaton kindly contributed the section on the pictures, and the chapters on Geology and Antiquities are by Mr. Mark Knights.

Mr. J. H. Gurney, Dr. Henry Woodward, and Mr. J. B. Bridgman, have most kindly read the portions of the Guide on which they are special authorities, and Mr. James Reeve, the Curator of the Museum, has been of the greatest assistance in all ways.

To Messrs. Adam and Charles Black, and to Professor Newton, the thanks of the publishers are due for permission to use illustrations, nine in number, from the *Dictionary of Birds*. Other illustrations, all of which are duly acknowledged in the text, first appeared in the *Norfolk Archaeology*.

T. S.

*Norwich, August, 1895.*



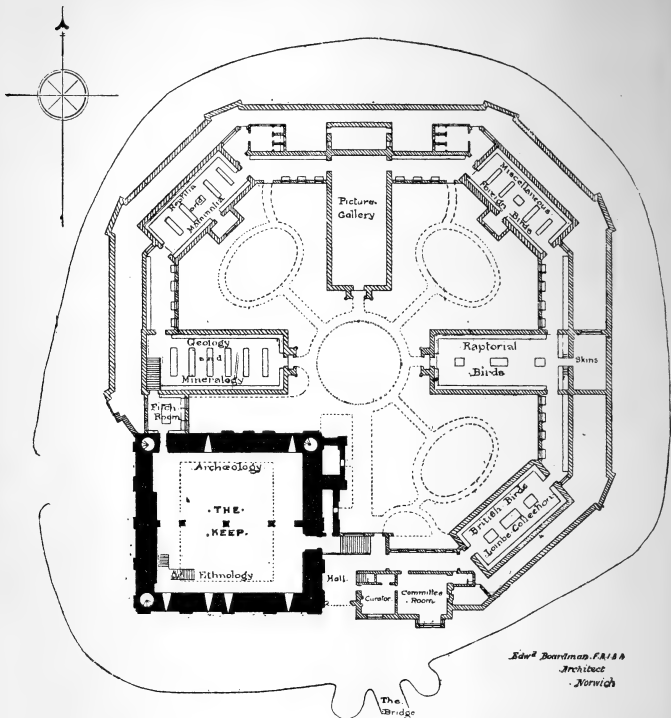
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# THE OFFICIAL GUIDE

TO THE

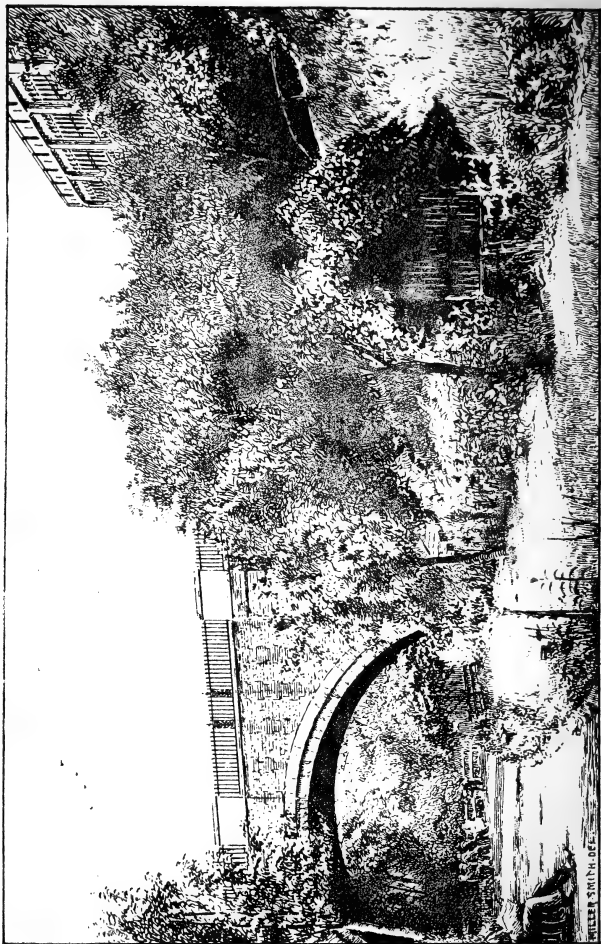
## NORWICH CASTLE MUSEUM.



THE "Castle," which is now the home of the Museum collections, comprises the whole series of galleries in which they are exhibited. There is, however, only one building which rightly deserves the name, the great square Norman Keep. The rest of the buildings, surrounded by the granite-faced wall, are the modern prison buildings, which were appended to the Keep by the County Magistrates in 1824. That has constituted their only history until now, when they have been dexterously converted into Museum Galleries.

To Mr. John Gurney is owing the inception and launching of the grand idea which has resulted in the present beautiful and commodious galleries, and we are indebted to Mr. J. H. Gurney for the principal of the treasures which fill them. Neither of these gentlemen, however, lived to see the completion of the work in which they took so great an interest.

The way in which Mr. Boardman performed the very difficult task of converting what had formerly



SAXON ARCH, APPROACH TO THE KEEP, FROM THE DRY MOAT SURROUNDING THE CASTLE.

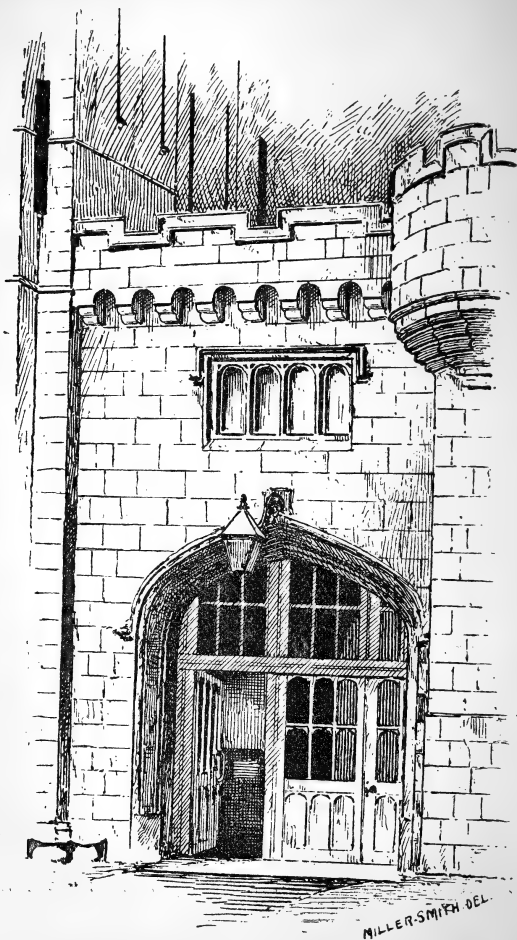
been a dreary prison into the present light and beautiful series of rooms, is deserving of the highest praise; in this he was ably seconded by Mr. G. E. Hawes, who not only carried out the structural alterations, but also entirely constructed the wall cases, and the elegant fittings in the Fitch Room, all of which reflect the greatest credit on Norwich workmen. The refitting the wall cases in the British Bird Room, and the making of the new table cases, were entrusted to Mr. Dart, of Crediton. The

### **Approach to the Castle**

is over a fine old Saxon arch which spans the dry moat surrounding the hill on which the Keep stands, the moat is now cultivated as a recreation garden, much appreciated by the citizens; this leads to a broad Terrace walk, extending quite round the Keep, from which extensive views in all directions are to be obtained, the whole of the Museum buildings being enclosed by a lofty granite wall, and the terrace bordered by a light iron palisade.

### **The Museum.**

The Museum buildings consist of six main blocks, connected by corridors, and arranged in the form of a hexagon, the Castle Keep being situated at the south-west corner. Three of these buildings, two of which are 66 feet long by 22 feet broad, and the third 55 feet long by 28 feet, are arranged parallel with the outer walls of the enclosure, the remaining three, which have their longer axis directed towards the centre of the space enclosed by the outer walls, are each 68 feet by 28 feet. These are all lighted from above, the



THE ENTRANCE TO THE MUSEUM.



three large rooms having each a window in the inner gable in addition. The connecting corridors receive their light from windows on the side next the enclosed garden. The Keep, round which runs a spacious gallery, is about 70 feet square, with cellars in the basement, which are of considerable archæological interest, and contain the remains of the ancient prison, also the old well, which supplied the Castle in former times. The whole of the buildings are warmed by hot air, and lighted by electric light.

The visitor enters the Museum through a fine pair of oak, iron-studded doors, and an inner glazed lobby, with screen and swing doors also of oak, and finds himself in a spacious hall, beautifully paved, like all the rooms and corridors (except the Picture Gallery and the floor of the Keep), with marble mosaic. In the centre of the floor is the City Arms, formed of coloured mosaic; immediately in front is the stone staircase leading up to the Keep, and embedded in the wall on the left are two slabs of red granite, one at present blank, but intended for an inscription commemorative of the conversion of the prison into a Museum.

The objects exhibited in the entrance-hall are of rather a miscellaneous character, notably a highly-sensational group showing a fine tiger in the deadly coils of a giant boa-constrictor, which however admirable in execution, must not be accepted as representing an event of everyday occurrence, but rather as an example of the taxidermist's skill and inventiveness; a case containing a very fine pair of so-called Polish swans (*Cygnus immutabilis*), a species not recognised by all naturalists, but which has been met with more frequently in Norfolk than perhaps any other part of the country, although not quite so striking as its neighbour, is very beautiful. There are a few other cases

of birds, but they do not call for special mention here.

On the right of the entrance-hall is a flight of stone stairs leading up to the Corporation

### **Muniment Room,**

to which has been transferred the valuable collection of Municipal Documents formerly in the Guildhall. They date back to 1240, and consist of Deeds, Parchment Rolls, bound Volumes, and more modern paper documents. The Royal Charters are still in the Guildhall.

Near the staircase is the door leading into the Curator's and Committee rooms, in which are

### **The Library.**

This, though not very extensive, contains some valuable works.

Through the glass door in front are seen the central gardens, which will doubtless be much resorted to in summer.

Passing to the right in the first corridor, hanging against the walls, will be noticed a fine cartoon by J. G. Waller, F.S.A., by whom it was presented to the Museum, representing the Brothers rescuing their Sister from Comus and his Rabble (Milton's Comus, lines 657—664)\*; and near the door leading into the garden is a view of London in 1647, showing the houses as they existed at that time on London Bridge—this is not original, but a reproduction, dated 1832. Between the windows of the corridor are two of the cases, Nos. 31 and 34, belonging to the Lombe

\* This cartoon was exhibited in Westminster Hall in 1843, and was awarded a premium of £100.



THE KEEP FROM THE MUSEUM GARDENS, SHEWING BIGOD'S TOWER.

collection of birds, to be mentioned shortly; and on the opposite wall is a copy of Cleers' Map of Norwich, dated 1696, which formerly belonged to Kirkpatrick, and bears his MS. notes in red ink, as well as his signature. There is also a fine copy of Kirkpatrick's N.E. prospect of Norwich, dated 1720—remarkable for showing the long streets of houses with pointed gables, which have now almost disappeared—and a fine view of the celebrated sign which formerly spanned the road at Scole Inn.

Passing through a swing door at the end of the first corridor, the visitor enters

### **The British Bird-Room.**

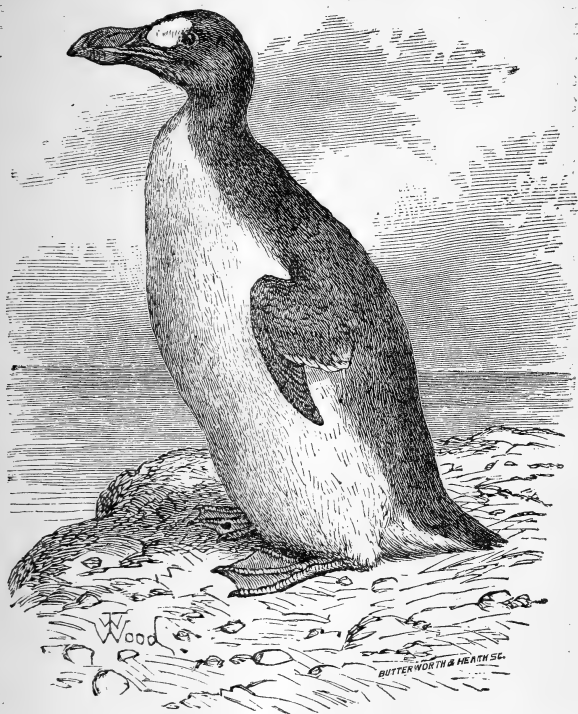
It is well that this room should be seen first, for notwithstanding the many treasures it contains, the first appearance, compared with the beautiful wall-cases in the other parts of the building, is slightly disappointing. This arises from the Lombe collection, which occupies the whole of the right side, being in the original old-fashioned though excellent cases, and the wall-cases on the other side of the room having been adapted from the old Museum. But this feeling soon passes away, more especially should the visitor have some knowledge of Ornithology, when he inspects the contents of the room more closely. There are here some of the most beautiful as well as the rarest of British birds, most of which possess the additional attraction of local origin.

We will first speak of the

### **The Lombe Collection,**

which was formed by the late Edward Lombe, of Melton near Norwich, and presented to the Norwich Museum,

by his daughter, the late Mrs. E. P. Clarke, of Wymondham. At the time it was made, early in the present century, it must have been one of the most



GARE-FOWL OR GREAT AUK.

*From Professor Newton's "Dictionary of Birds."*

complete private collections in this country. It was removed to the old Museum, and opened to the public

in July, 1873. It consists of thirty-six large uniform cases of British Birds, and two of British Mammals, all preserved and cased by the celebrated Leadbeater, of London. There are 289 species of British birds, represented by 540 specimens remarkably well preserved, and frequently exhibiting adults of both sexes, as well as immature examples. The gem of the collection is the Great Auk, or as modern ornithologists prefer to call it, the Gare-fowl, which will be noticed under a separate glass shade; unfortunately the history of this particular bird is not known. The species, however, is now extinct, and comparatively few examples are in existence. The Gare-fowl was quite incapable of flight, but fully at home on and in the water, which it seldom left. Its chief home in the breeding-season, when it visited the land, was certain islands off the coast of Newfoundland; the last of which it resorted to was Funk Island, where it was most ruthlessly exterminated. The final resort of the species was a small group of rocky islands off the south-west point of Iceland, where it became extinct in 1844. As may be imagined, these birds are exceedingly valuable, the last which changed hands was accompanied by an egg, the two selling by private contract for £600; whilst the eggs alone have produced by auction almost fabulous prices, one which formerly belonged to Mr. Yarrell, selling in 1888 for £225; and two others, accidentally discovered amongst some fossils of little value, which were purchased for 36s., although both somewhat damaged, one more so than the other, sold on the 24th April, 1894, for £273 and £183 15s. respectively.

A bird hardly less interesting than the Gare-fowl, although very inconspicuous, will be found in Case 7, No. 35. It is a male of a small warbler known as Savi's Warbler, of which the Museum is the fortunate

possessor of three other specimens, all killed in the county of Norfolk; one of these is the first example of the species known to have been obtained in Britain, and probably in Europe. The example in the Lombe collection was killed at Strumpshaw early in the present century.

In the centre of the room, also arranged in vacant spaces round the walls, are a number of separate cases containing birds, in many instances of great rarity, and almost all of local origin.

A very interesting memento of the almost forgotten but once popular sport of cock-fighting will be found in one of these cases. It consists of two cocks, trimmed and spurred, the one triumphant over its fallen foe, which lies prone at its feet. This group is the work of John Hunt, formerly a bird preserver in Norwich, and the author of an illustrated work on *British Ornithology*, dated about 1815, of considerable merit, but unfortunately never completed.

Perhaps the most interesting of all these rarities, certainly the most imposing, is the unequalled group of Native Great Bustards, which occupies the centre of the room.

The birds in the wall cases in this room are arranged in accordance with the system adopted by a Committee of the British Ornithologists' Union, and embodied in their published catalogue, generally known as the "Ibis List." There are eight cases. Commencing with

#### Case I.,

we find the Thrushes take precedence, in which family are our well-known Song Thrush and Blackbird, as well as a great diversity of other species, some of which the unlearned would hardly expect to find associated even under different sub-families. In the same

case will be noticed the pretty Blue-throat, nearly allied to the Redstart, which breeds in Arctic Europe, wintering far to the south. We mention this bird for the reason that it was formerly considered a great rarity in the British Isles, but it now generally visits the east coast on its autumn migration, sometimes in rather considerable numbers. The three examples of Savi's Warbler already referred to, are in close proximity, in a small glazed case. A very attractive bird, known as the Dipper, or Water Ouzel, a frequenter of rocky mountain streams, into which it deliberately walks until quite submerged, in search of the aquatic larvæ which form its food, will be seen well represented. Some beautiful examples of the Golden Oriole are followed by the Shrikes or Butcher Birds, and lovely specimens of the Waxwing, an occasional winter visitant. A number of small but interesting species, amongst which are the Bullfinch, Crossbills, and Buntings, bring us to another rarity, the Rose-coloured Pastor, a very occasional summer visitor to this country; succeeded by the Nutcracker, a straggler from the mountain districts of the European continent; the charming but persecuted Jay, and its companion in evil repute, the sprightly Magpie. Then follow the Crows and Larks, amongst which latter will be noticed the Shore Lark, an inhabitant of Northern Europe, Asia, and America, which, like the Blue-throat before mentioned, although formerly considered a great rarity, has now become a constant autumn visitor to the east coast. The Alpine Swift, another rare straggler, is represented by an example killed at Old Buckenham, in September, 1831, and two beautifully pied varieties of the Nightjar will be seen, one of which, the gift of Mr. Wilkinson, of Holt, was killed near that town in 1858; for the other the Museum is indebted to Lord Hastings. Passing



the Woodpeckers, we come to some bright tropical-looking birds, our own lovely Kingfisher, the not less beautiful Roller, Bee-eater, and the crested Hoopoe, which, with the Cuckoo, bring us to the end of the case.

### Case II.

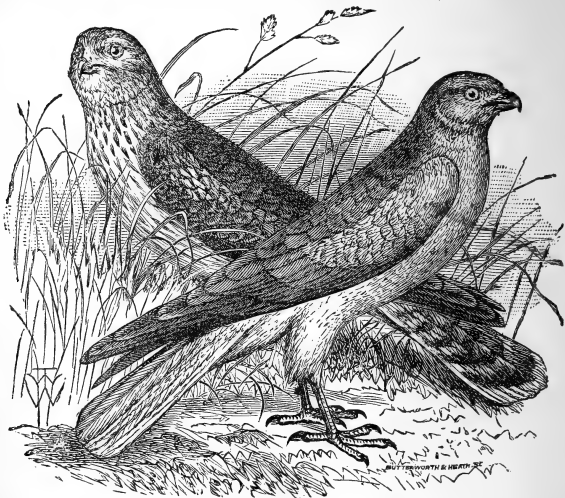
Few birds are more interesting than the Owls, which follow here; the well-known Barn Owl being the most familiar species. A beautiful pied variety of the Long-eared Owl, a bird very little given to variation, will be found in a separate case; it was killed at Filby, and the gift of the Rev. C. J. Lucas. Perhaps the most conspicuous objects in this case are a group of Snowy Owls, with young ones in various stages of plumage, from the chick a few hours old, to fine adult birds in their striking white plumage, sparingly spotted and varied with black. A very striking object also is a young common Barn Owl in its white down.

In this case commence the diurnal Birds of Prey; the first family of which is known as the Harriers, a group occupying a position in the arrangement here adopted between the Owls and the Buzzards, to the former of which its facial disk causes it to bear some resemblance. All the three species of Harrier were frequent breeders in the uncultivated districts of Norfolk at the beginning of the present century, but have now become exceedingly rare, and with one exception have ceased to breed here. The Marsh and Hen Harriers are here, but the third species, Montagu's Harrier, will be found in

### Case III.

The last named is followed by the Buzzards, one species of which formerly bred in Norfolk. Next

in succession are two fine British Eagles, the Golden Eagle of very rare occurrence in South Britain, and the White-tailed Eagle. The specimen of the first named in the case was killed in Perthshire, but an English example procured in Yorkshire will be found immediately on entering the next corridor, where a few separate cases forming an overflow from this room are

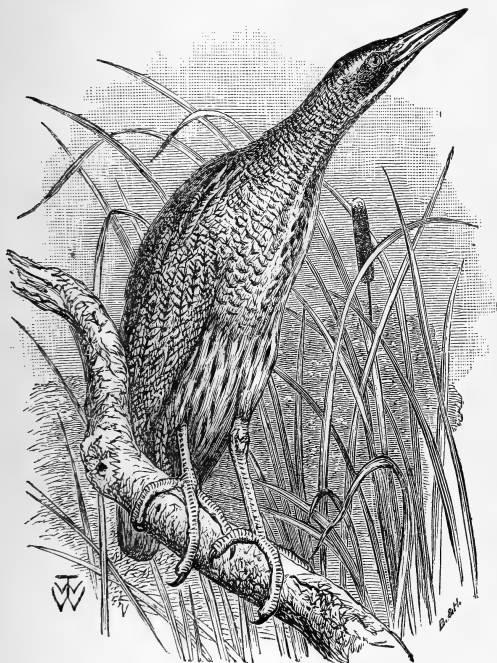


THE HEN HARRIER (MALE AND FEMALE).

*From Professor Newton's "Dictionary of Birds."*

placed. The Goshawk, now a very rare visitor in the Eastern Counties, is succeeded by the Kite, another example of a once common bird now become excessively rare in this country. The beautiful Greenland and Iceland Falcons will be found in the lobby before mentioned, and should not be missed. The

smaller Falcons, including a charming little Red-footed Falcon, killed near Norwich, on August 10th, 1843, form a very attractive group. The Osprey, or



THE BITTERN.

*From Professor Newton's "Dictionary of Birds."*

Fish-hawk, sometimes a visitor to our waters, is the last species in this case.

**Case IV.**

contains some very showy birds. The Shag and the Cormorant will be found in the Lombe collection, Case 23; the latter is another bird lost to this county as a breeding species, for which purpose it resorted to the trees at Fritton, certainly as late as the year 1825. The Gannet occupies a position at the top of the case, and is followed by fine examples of the Heron. The Lombe collection, also Case 17, contain some very beautiful birds of this family, including the lovely Egrets, whose beautiful side plumes only developed, be it remembered, when the bird is breeding, prove a fatal gift, and have led to the extermination of the species in many of its former nesting-places to meet the cruel and thoughtless demands of fashion. A very rare species, known as the Squacco Heron, a native of Southern Europe and Northern Africa, formerly in the Stevenson collection, and which was killed at Surlingham, occupies one of the small cases. Lower in the wall case are the Bittern, once so common in the fenny parts of Norfolk, and the White Stork. Of the rarer Black Stork, a Norfolk specimen, from the Stevenson collection, which was killed on Breydon in June, 1877, will be found in the lobby at the entrance of the room. Some fine adults of the Spoonbill, a species which, like the Herons, and in their society, formerly bred at Claxton and Reedham, on lofty trees, seemingly a strange nesting-place for these long-legged birds, brings us to the end of this order.

We now come to the Anseres, and a fine series of the British Geese are contained here, and in Cases 29 and 30 of the Lombe collection. Especial attention is called to the Pink-footed Goose (in a separate case), which, although not recognised in this country

till the year 1841, is now, as it doubtless was before that time, by far the most numerous Goose found in Norfolk. It is especially abundant on the Holkham marshes in winter. Of the Swans two species have already been referred to in the vestibule, and here will be seen two other elegant wild species, the Whooper and Bewick's Swans, both of which are occasional winter visitors to our waters, of uncertain occurrence, but sometimes rather numerous. The eight species of wild Duck known to breed in Norfolk are well represented here and in the Lombe collection (Cases 25 to 28), amongst which may be mentioned the beautiful Sheld Duck and the Gadwall; the latter species is worthy of note, for though occasionally occurring in this county previous to the year 1850, it could up to that time be only regarded as a winter visitant. Those rare Ducks, the Red-crested, Buffle-headed, and Steller's Western Duck, have already been mentioned; and at the bottom of this case will be seen a young male King Eider, which was killed at Hunstanton in the middle of January, 1888, and is the first recognised Norfolk specimen. It has, however, been met with twice since in the same locality. These are followed by the Mergansers and the Smew. In

#### Case V.

are the Pigeons and the Game Birds, an interesting series of which will also be found in Cases 10 to 14 of the Lombe collection. A fine case of Grouse and Capercally is in the Lombe collection, No. 11. The Spotted, Baillon's, and Little Crakes are all represented by locally killed birds, as also the Crane, a bird noted for its beauty and stately bearing, which formerly bred in England, and probably in this county; the specimen here shown was killed

on September 1st, 1873, at East Wretham. At the bottom of the case is a fine Bustard. The beautiful group of these birds in the centre of the room, as already explained, represent the extinct race of Norfolk-bred Bustards, which have vanished never to return, the species now ranking with us as an occasional migrant; of the latter class, the bird above mentioned is a representative, having been shot at Winterton on the coast in the year 1820. Several other migratory examples have been obtained in this county since that date. The two Little Bustards in close proximity are also Norfolk specimens, one was killed at Trunch and the other near Norwich; both are females. There are also two others, male and female, localities unknown.

#### Case VI.

devoted to the LIMICOLÆ, also contains many rarities worthy of notice. The fine bird known as the Stone Curlew, or Norfolk Plover, is found in summer breeding sparingly in the open parts of the county; there are also specimens of a remarkable long-legged bird, the Avocet, which at the beginning of the present century nested in more than one locality in this county, notably at Salthouse Marshes, where it was called the "Shoe-Awl," from its peculiarly formed beak. A still longer-legged bird close by is appropriately named the Stilt Plover, the bird in this case was killed on Hickling Broad on June 10th, 1822. Some beautiful varieties of the Woodcock from the Hastings collection, and several very rare Sandpipers, amongst which are an example of the scarce melanistic variety of the Common Snipe known as "Sabine's Snipe;" the Broad-billed Sandpiper first made known as a British Bird from a Norfolk-killed

specimen; the Pectoral Sandpiper, another American species first obtained on Breydon; and an even rarer bird, the Siberian, or Sharp-tailed Pectoral Sandpiper, which has only twice been procured in Britain, and both times on Breydon. The Museum specimen of this bird has only recently been recognised, although it was killed in September, 1848. The splendid series of Ruffs, all local specimens in breeding plumage has already been mentioned, but others will be observed in this case. Two more New-world stragglers must be pointed out; the Buff-breasted Sandpiper, the Museum specimen of which was killed at or near Sheringham on 29th July, 1832, and the Brown Snipe (*Macrorhamphus griseus*), killed at Horsey, on 9th October, 1845. The collection also contains some beautiful breeding examples of the Black-tailed Godwit, a bird which early in the present century nested in several localities in Norfolk.

#### Case VII.

is appropriated to Aquatic Birds, and commences with perhaps the most graceful of all these charming birds, the Terns and Gulls. The lovely Common and Lesser Terns are the only species now left to us as summer residents, and these from persistent eggging, and the heartless fashion of adorning (?) ladies' hats with their distorted bodies, are in great danger of extermination. The Arctic Tern is only a passing migrant, and the Roseate Tern, a great rarity in this county—although it formerly bred in some numbers on the Farne Islands—is represented in the collection by only one local specimen, which was killed at Hunstanton on 12th July, 1880, and generously presented by Lord Lilford. The Caspian and Sandwich Terns, of which fine species examples will be noticed, are

only passing visitants to this county, and the Whiskered and Noddy Terns are both represented by other than local specimens. The Black Tern is another of those birds which is lost to us as a summer resident, and the White-winged Black Tern is a rare southern species, which occasionally appears in the neighbourhood of the Broads.

Nearly allied to the Terns are the Gulls (*LARINÆ*), the first example of which is the beautiful Ivory Gull, a circumpolar species rarely found on the British coast. This is followed by the pretty Kittiwake (*Rissa tridactyla*), one of our most common Gulls. Next are the Glaucous and Iceland Gulls, both Arctic species, the former sometimes met with off our coast in winter, generally in immature plumage, the latter of very rare occurrence. The Lesser Black-backed, Common Gull (*Larus canus*), and Greater Black-backed Gulls are met with all the year round; the first and last, as well as the Herring Gull, most commonly in immature plumage. The fine Great Black-headed Gull here exhibited is not a British killed specimen; its home is the Mediterranean and Black Seas, and its claim as a British bird rests on a single occurrence at the mouth of the Exe. The next however, the Common Black-headed Gull, nests at Scoulton and Hoveton, and is probably our most numerous species at all seasons. The Little Gull—which also has a black head in the breeding plumage—inhabits Northern Europe in summer, and is only an occasional straggler to our shores; it is shown here in both summer and winter plumage, as is also the beautiful Sabine's Gull, the last of the black-headed species.

Of the Skuas or Robber Gulls there is a fine series; the first of the family, the Great or so-called Common Skua, will be found in the Lombe collection, Case 33.



This fine bird, which breeds in a restricted area in Shetland, is very rare on the Norfolk coast.

### Case VIII.

commences with the Pomatorhine Skua, an uncertain but sometimes rather numerous visitor to our shores; two others, Richardson's and Buffon's Skuas, claim attention, the former breeds in the northern division of the kingdom and adjacent Isles, and is by far the most common species on our coast; the latter, known as the Long-tailed Skua, from the two centre feathers extending sometimes as much as nine inches beyond the other feathers of the tail, is circum-polar in its habitat, and seldom visits us, especially in adult plumage. Of the Oceanic birds, perhaps the best known, is the Storm Petrel, a swallow-like bird, which rough weather at sea frequently brings to our shores sometimes in large numbers. The same may be said to a less degree with regard to the Fork-tailed Petrel. Some rare birds of the genus *Puffinus* and its allies have been met with in Norfolk; unfortunately they are not in the Museum collection. Examples of the Manx and Greater Shearwaters will be seen, and of the Fulmar, which seldom visits the shore, but is often rather numerous out at sea; it is a handsome, powerful-looking bird, and breeds in some of the Scotch Islands. Of Bulwer's Petrel, a southern species of this wandering family, we are unable to exhibit a Norfolk-killed specimen, but it will be found represented.

The Divers which follow, commence with the Great Northern Diver, the largest of its kind, which, with the Black-throated and Red-throated Divers, are met with fishing off our coast, but generally in immature plumage; fine specimens, however, will be seen in the

collection. The Grebes, next in order, are not strictly marine; the largest, the Great Crested



GREAT CRESTED GREBE.

*From Professor Newton's "Dictionary of Birds."*

Grebe, is one of the greatest ornaments of the Norfolk Broads, on most of which, where not too much disturbed, it breeds. There are four other species of

Grebe in the collection, all very elegant birds, one only of which, the Little Grebe, is found in any numbers in Norfolk.

The Auks are Oceanic birds, more or less common on our shores, particularly the Razor-bill; but its cousin, the Great Auk, before referred to, is now extinct. The Guillemot is another well-known inhabitant of our waters; the Black Guillemot is much rarer, but it breeds on the Irish coast and some of the Scotch Islands. The Little Auk, a quaint little bird, circumpolar in its habitat, occasionally visits our shores in stormy weather, even in considerable numbers, and on such occasions is often driven far inland; one of our specimens was taken on the Gentleman's Walk, another will be observed to have the black chin and throat of summer, a state of plumage very rare so far south; this example was killed at Wells, in May, 1857. Only one more bird remains for us to mention, and that a very remarkable one known as the Puffin. It is a dapper little fellow, breeding in suitable localities all round the coast of Great Britain, depositing a single egg in holes in the ground, and for the most part availing itself of rabbits' burrows. The bill in summer is enormous and gaudily coloured; it has the curious habit of shedding some portion of it, as well as some other horny ornamental appendages, after the close of the breeding season.

The corridor, opening out of the British Bird Room, through which we pass into the next block, contains on the left side four cases devoted to the collection of

### **British Birds' Eggs,**

and three small wall cases, in which are a number of nests, also of British Birds.

Passing for the present the line of wall cases on the

right-hand side of the corridor, we enter the noble room in which are displayed the bulk of the specimens forming the splendid collection of

### Raptorial Birds,

which form a lasting memorial of the energy, liberality, and profound acquaintance with this branch of Ornithology possessed by the late Mr. J. H. Gurney, who, in 1853, stated his intention to form as complete a collection as possible of the Birds of Prey; and the beautiful series here exhibited, as well as a large number of skins reposing in the cabinets in the "Skin Room," testify to the success which has attended his untiring efforts. Many of the specimens are described or otherwise alluded to in the *Ibis*, a scientific journal devoted to Ornithology (vols. for 1859-1882), and some of them are figured either there or in the publications of the Zoological Society.

In describing these, frequent use will be made of the excellent *Sketch of the Raptorial Birds in the Norwich Museum*,\* written by Mr. Gurney in 1872, a little book replete with information, and a model of the popular treatment of a scientific subject.

The birds of prey, nearly all of which are feeders on flesh, are divided in Mr. Gurney's Museum Catalogue into two great groups—the ACCIPITRES, or birds which seek their prey by day, and the STRIGES, or Owls, most of them nocturnal or crepuscular in their habits. The Accipitres are, for the most part, powerful birds, possessing great capacity for soaring and sustained flight, bold in their habits, and furnished with formidable claws for holding, and hooked beaks for rending. They vary greatly in size,

\* Published by Jarrold and Sons. Price Sixpence.

as will be seen in the collection, from the giant Lammergeyers to the tiny Indian *Microhierax*; but their fierceness is not always in proportion to their bigness, as instanced by our familiar little British Merlin, one of the boldest of the *Accipitres*. They are widely distributed, some of them—as the Peregrine Falcon—being almost cosmopolitan; others are very restricted. About 470 species are recognised by Mr. Gurney, and of these 403 are represented in the Norwich Museum. The various main divisions of this order will be referred to more at large as we pass them in review in their proper places, and for the present we shall confine ourselves to the first family,

## ACCIPITRES.

### CASE I.

On entering the large room containing the bulk of the Birds of Prey, we turn sharp to the left, commencing with the wall case numbered 1. There are also many small, and some of them very beautiful cases, containing rare or choice specimens, to all of which reference cards will be found in their proper places in the wall cases; these small cases will here be indicated by separate numbers. The first bird which attracts our attention, following the order in which they are arranged in Mr. Gurney's Catalogue, is a very abnormal form, the only member of the family *SERPENTARIIDÆ*, so called from its favourite food consisting of snakes and reptiles, but perhaps better known as the Secretary Bird, from the fanciful resemblance of the feathers at the back of the head to a pen fixed behind the ear. This is the only species of this very restricted family.

Following *Serpentarius* is the genus *Polyboroides*,

which contains two species, *P. typicus* and *P. radiatus*. They are both reptile feeders, the former having an extended range on the continent of Africa, the latter being found in Madagascar. Both species are possessed of a remarkable peculiarity which exists



THE SECRETARY BIRD.

*From Professor Newton's "Dictionary of Birds."*

in no other bird, they are able to direct the tarsus (the long bone immediately above the foot, popularly regarded as the leg) both backwards and forwards. This peculiar flexibility at the joint between the tibia

and tarsal bones appears to be of great service to the bird in searching sun cracks in the parched soil for the reptiles which take refuge there after the waters of the smaller pools are dried up. Mr. Gurney has had one of the specimens so mounted as to show this singular action. The remaining birds in this case belong to the Caracaras, or carrion-eating Hawks, natives of South America, a country inhabited by more birds of prey than any other region in the world. A member of this group, *Senex australis*, inhabits the Falkland Islands, where one of our specimens was collected by Charles Darwin. In

### Case II.

we find the first of the true Vultures, a well-defined family inhabiting the warmer parts of both hemispheres. The typical Vultures are characterised by their heads and necks being more or less bare, which gives them a somewhat repulsive appearance, although some species are remarkable for the delicacy and vividness of their colouration; their habit of feeding on carrion renders them invaluable as scavengers in hot climates where they most abound, and render important service in removing the putrescent animal matter which would otherwise prove pestilential.

The Egyptian Vulture, the Gier Eagle of Scripture (Lev. xi. 18, Deut. xiv. 17), (*Neophron percnopterus*), has a claim upon us as one of the two species which has wandered to our shores. A large series of these birds will be found in various states of plumage as well as skeleton and eggs. These are followed in

### Case III.

by the Black Vulture (*Catharista atrata*) found in South America, and the Aura Vulture (*C. aura*) known in the

United States as the "Turkey Buzzard," a large series of these will be found differing considerably in size. On the floor of the case is a fine group of one of the most highly prized species in the Museum, *viz.*, the Californian Vulture (*Pseudogryphus californianus*), a grand species frequenting Rocky Mountains and the North-western shore of America, from Southern Mexico northward to Oregon, but now almost extinct. A fine series of these birds will be found with nestling, eggs, and skeleton, and some of the soft parts are in spirits.

#### CASE IV.

contains the great American Condors from the Andes, the largest bird of prey known, and four King Vultures (with skeleton and eggs). The latter beautiful species inhabits the tropical parts of America, and gains its appellation, says Mr. Gurney, from the circumstance that the other Vultures inhabiting the same district never venture to alight on the carcase at which it is feeding until he "has satisfied his royal appetite, and with slowly flapping pinions, has winged his way to the dead limb of some lofty tree, where, with his crimson head and purple neck nestled down between the cream-coloured feathers of his wings and shoulders, he will patiently sit till the return of hunger recalls him from the memories of his last feast to a quest for the repast which shall succeed it." In

#### CASE V.

is a very fine old example of the Oricou Vulture (*Otogyys auricularis*), which lived in Mr. Gurney's aviary from the year 1855 to 1877, where she was well-known as Mrs. Stockings, from the white feathers of the thigh. During her long confinement she laid



many eggs, some of which are now in close proximity to her ; there is also a skeleton of the Oricou.

#### Case VI.

holds a fine series of Rüppell's Vulture, with skeleton and egg, as well as good examples of the Griffon Vulture (*Gyps fulvus*) and its sub-species, with nestling, eggs, and skeleton ; and with

#### Case VII.

we arrive at the last of the true Vultures, as represented by *Gyps indicus*, the long-billed Griffon Vulture, and *G. africanus*. In

#### Cases VIII. and IX.

begin the FALCONIDÆ, the first examples of which are both in form and habits intermediate between the true Vultures and the Eagles. Of these there is only one genus, *Gypaëtus*, signifying Vulture-Eagle, and it is represented by two species, the magnificent Lämmergeyers (Lamb Vultures). The best-known of the two is the European Bearded Vulture, distinguished by a beard-like tuft of bristly feathers, at the base of the mandible, this adds greatly to its fierce appearance. Of these fine birds there is a unique series in the collection, numbering thirteen individuals, with skeleton and eggs. In the present day the Bearded Vulture is found in some of the most lofty mountain chains in the Old World, in Portugal, Greece, the Italian Alps, Sicily, and Sardinia ; it is also found in the Himalayas, the Punjab, and some other parts of Asia ; but it is one of those birds probably marked for extinction in Europe, and has indeed disappeared from several of its ancient haunts. The food of the Lämmergeyer appears to be very varied ; its name

indicates one habit, doubtless fatal to its existence, but it is also said to be very partial to tortoises which it carries high up into the air and drops on a rock or stone to break the armour with which they are covered. The well-known story told by Pliny will be remembered, how the bald head of the poet Æschylus being mistaken for a stone by one of these birds, it dropped a tortoise from on high and caused the death of the poet.

#### Case X.

commences the Eagles, amongst which will be noticed the great Wedge-tailed Eagle of Australia (also skeleton and eggs), and our own Golden Eagle found in some parts of Scotland—where its numbers appear to be increasing—the latter represented by a grand series from Europe, North Africa, Asia, and North America; here is also a fine species known as the Imperial Eagle. In

#### Case XI.

will be seen the beautiful Tawny Eagle from Mogador, the Abyssinian, and Cawnpore Eagles, and others; and in

#### Case XII.

the last of the true Eagles, the Spotted and long-legged Eagles.

On the last two shelves we commence the Hawk Eagles, so called from their short wings and more fully-developed tails; of these there are a large number of species from widely-dispersed localities. *Nisaetus fasciatus*, the first, is a handsome bird known as Bonellis' Eagle, it is widely-dispersed all over Southern Europe and Asia and North Africa, and not unlikely some day to be met with in England.

**Case XIII.**

contains some beautiful crested Hawk Eagles of the genus *Limnaëtus* ; one species, *L. caligatus*, the changeable Hawk Eagle, represented in its melanistic as well as in its normal phase. Gurney's Hawk Eagle, in

**Case XIV.,**

the type specimen, named by J. E. Gray, in honour of the late Mr. Gurney, is still a rare species, and was at the time it was acquired to be found in only one other public collection ; we now possess four specimens, one having been added since Mr. Gurney's death ; the Occipital Hawk Eagle, a handsomely-crested bird, will also be observed, it is remarkable for the extraordinary development of the occipital feathers, greater in proportion to the size of the bird than in any other Hawk Eagle.

**Case XV.**

also contains some imposing-looking species, amongst them the Crowned Hawk Eagle, one of the largest and most destructive Hawk Eagles of the Old World. The female, No. 2, was shot by Mr. T. Ayres, of Natal, just after it had killed a large monkey.

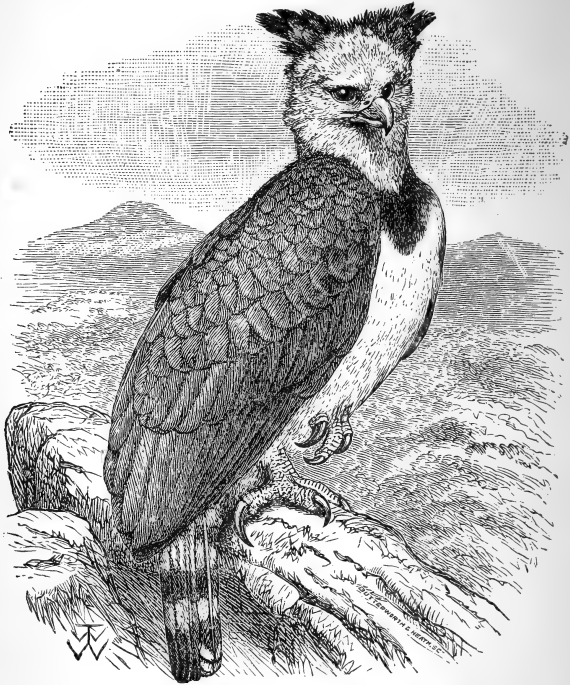
**Case XVI.**

contains three fine Harpy Eagles of tropical America. They are great destroyers of monkeys, fierce-looking, with wonderfully powerful feet and talons, and are perhaps the most formidable birds in existence.

Next follow the Buzzard Eagles, a large group of a much feebler type, but some of them very handsome birds ; they extend through

Cases XVII., XVIII., and XIX.,

and are found both in the Old and New World. One of the most beautiful of these is the Belted



THE HARPY EAGLE.

*From Professor Newton's "Dictionary of Birds."*

Buzzard Eagle (*Antenor unicinctus*) Case 16. This bird, departing from the habits of its kind, delights to

feed on carrion. The birds of the genus *Spilornis*, Cases 16 and 17, remarkable for their peculiarly spotted plumage, are succeeded by the genus *Circaëtus*, here fully represented; one species, *C. fasciolatus* (Case 18), of which there are two specimens in the collection, was formerly very rare, it will be found figured in the *Ibis*, for the year 1862, Plate III. The genus *Helotarsus*, short-tailed Eagles of great beauty of plumage, but of rather grotesque appearance, are the last of the series of Buzzard Eagles. These birds will be found in Case 18, the last in the room; they are known as "Bateleur" or Tumblers, from their very peculiar flight at times resembling that of the carrier pigeon. The Bateleurs are great devourers of snakes which they carry away in their talons. It was Mr. Gurney, I believe, who first suggested that it is this species which gave rise to the ancient fable of the Phoenix. Leaving the large room we now go to the bottom of the corridor, on the right-hand side of which we find the next

#### Cases XX. and XXI.,

commence with a new class, *Haliäetus*—the Sea Eagles—a magnificent group of powerful birds frequenting both salt and fresh water in every quarter of the globe. They prey chiefly on fish, often however, supplemented by other animal food. The largest and most powerful of these Eagles is the Kamskatcha Sea Eagle, the adult of which has a white shoulder; the fine bird with a white head, No. 5, is the Bald Sea Eagle, the National emblem of the United States. On the leg of one of these adult birds will be noticed a chain; it was formerly for many years kept chained to a block at Rackheath, but escaped at night, causing great alarm to the natives.

**Case XXII.**

contains the Osprey, a fish-eating bird, almost cosmopolitan in its distribution; indeed, Professor Newton, in his *Dictionary of Birds*, says, "The countries which it does not frequent would be more easily named than those in which it is found—and amongst the former are Ireland, Iceland, and New Zealand." It is now a rare bird in Britain, but still nests in one or two localities where every endeavour is made to protect it. There are some slight differences in the Ospreys inhabiting various parts of the Globe, considered by some sufficient to render them specifically distinct. The interesting Indian and Australian genus *Haliastur* follows, three species of which are very similar.

The next genus is that of *Milvus*, containing the Kites, graceful birds on the wing, with long forked tails; one species, the Common Kite, of which there are lovely specimens in

**Case XXIII.,**

with nestlings, from Germany, was indeed once common in this country, but is now exceedingly rare, though still nesting in Wales. Two other species have occurred in Britain, the Black Kite once, and the still more beautiful Swallow-tailed Kite on two occasions. The various Kites are spread over Africa and Southern and Eastern Asia. Of one species, the Australian Black-breasted Kite (*Gypoictinia melano-sternon*), the Museum long contained only one wing, which was sent over from the Swan River with other birds' wings, intended for plumes for hats; we now, however, possess four specimens of this rare bird as well as its eggs. [Small Case 1.]

Nearly allied to the Kites are the Perns, which commence in

## Case XXIV.,

amongst these will be noticed the Honey Pern or Honey Buzzard, as it is more frequently called (*Pternis apivorus*), a not unfrequent migrant to this county, where it doubtless formerly bred; but although its favourite food consists of the grubs of wasps, and it is therefore a positive benefactor, it usually falls to the gun of the game preserver. The Long-tailed and Andersson's Perns are both very rare species, the latter first described by Mr. Gurney from a specimen sent from Damara, S.W. Africa, by Mr. Andersson. The Long-tailed Pern (*Henicopernis*) was procured in New Guinea by the celebrated traveller, Mr. A. R. Wallace, and the Eastern Keel-billed Pern (*Machærirohamphus*), another rare species, is represented by two specimens from New Guinea and Borneo respectively.

## Case XXV.

also contains some rare birds of the genus *Baza*, none of which occur in Europe, but are met with in India, Ceylon, and the Islands of the Indian Ocean. Examples of the Great-billed Baza (*B. reinwardti*), collected by Mr. A. R. Wallace, in New Guinea, will be found in small Cases 2 and 3; also of *Baza gurneyi*—a very rare species from the Solomon Group—in small Case, No. 2. Passing from these elegant birds we come to the Falcons, some of which are small insect-feeding birds; others are possessed of great powers of flight, and are strictly carnivorous.

The extensive genus *Tinnunculus* is represented by twenty-one species, amongst the rarest are *Tinnunculus arthuri* (Gurney) from Mombassa, and *T. alopex* (Heugl.), the Fox-like Kestrel just added to the collection from Keren, Central Africa. In

## Case XXVI.

the first three shelves are still devoted to the Kestrels, amongst them will be recognised our own familiar species; there is also a fine series of *T. newtoni* (Gurney) with eggs. Four beautiful specimens of *T. caribbæarum* should be looked for in small Case, No. 6. These birds were sent in spirits from the West Indies by Sir Edward Newton, and in a glass-topped box are the remains of Lizards, &c., which formed the contents of their stomachs. Then follow the red-footed Falcons (*Erythropus*), one species of the genus has been met with in this county. *Poliohierax semitorquatus* from Namaqua Land, is also an interesting species, remarkable for its small size and elegant plumage; and the beautiful series of *Microhierax* or Dwarf Falcons, the smallest of the diurnal birds of prey, albeit very fierce little fellows, from South-Eastern Asia and some of the Islands of the Indian Ocean, will certainly attract attention. *Microhierax melanoleucus*, presented by Mr. C. B. Rickett, is a recent addition to the collection. The Merlins, including our British species, are also in this case.

## Cases XXVII., XXVIII., and XXIX.

are all occupied by the Falcons, commencing with the Hobbies, one species of which is a well-known summer visitant to Britain, followed by a magnificent series of the Peregrine Falcon and its sub-species, inhabitants of almost every part of the world. In this fine series, which Mr. Gurney was anxious to make as fully representative as possible of the geographical distribution and racial varieties of this widely distributed Falcon, the New World is represented by specimens from Fort Kennedy in the north, to Panama and Chili in the south; and in the Eastern



Hemisphere from Lapland to the Cape of Good Hope; whilst from east to west there is scarcely a country from California to Japan which does not contribute. This is certainly one of the most interesting of the birds of prey, whether we regard it in the light of its beauty, courage, wide distribution, or of the romance attaching to it as the favourite of the falconer in days gone by. The remaining Falcons are also noble birds, fierce yet docile, and formerly greatly valued by falconers in various parts of the world. There are the Barbary and Babylonian Falcons, the Lanner and the Saker; also the Gyr Falcon, the Iceland, and the Greenland Falcons, of which there are lovely specimens in this case, and eggs of each; also in small Cases, Nos. 9 and 10. Of both the Greenland and the Iceland Falcons there are British-killed specimens in the collection, the former killed near Cromer, and the latter in Rosshire.

### Case XXX.

The next group which claims our attention is rather an extensive one, comprising, according to Mr. Gurney's arrangement, four genera, known as Buzzards. They are imposing-looking birds, as a rule much smaller than the Eagles, slow and heavy in flight, deficient in courage as compared with the Falcons, and feeding chiefly on the smaller mammals, reptiles, and insects. They are found to inhabit nearly the whole world, with the exception of the Australian region. One species, the so-called Common Buzzard, was really at the beginning of the present century common in Britain, but notwithstanding its harmless or even beneficial character, it has fallen under the ban of the game preserver, and is doomed. Small Case, No. 12, contains nestling specimens of this bird.

A white variety, killed at Metz in 1860, will be observed in small Case 31. Another species of Buzzard, of frequent occurrence in this county as an autumnal migrant, is known as the Rough-legged Buzzard. As is the case with most birds of prey, these migrants are almost entirely young birds.

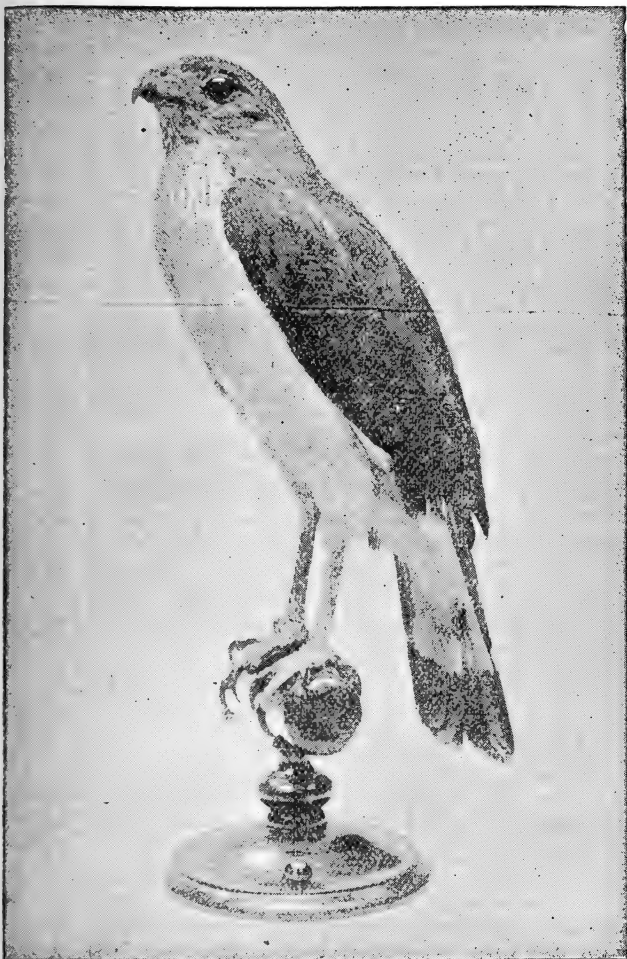
#### Case XXXI.

A nearly white variety of *Buteo borealis*, from Jamaica, is a conspicuous object in this case, and the examples of *B. solitarius* should be noticed as beautiful specimens of the taxidermist's skill. These, like many other lovely specimens of the birds of prey, were mounted by the late Mr. Roberts, who excelled in giving a lifelike character to often very impracticable materials.

#### Case XXXII.

The last case in the corridor contains the remainder of the Buzzards. The members of the handsome South American genus *Leucopternis* are conspicuous; one known as *L. ghiesbreghtii*, almost pure white, was obtained in Honduras; another specimen will be found in small Case, No. 16. Mr. Gurney remarks that in this species the proportion of black which mingles with the snowy white of the general plumage is greatest in the young birds, and appears to diminish as the age increases. The subject of the illustration, *L. semiplumbea*, was killed in Costa Rica in 1890; it is a very rare bird, and its acquisition by the Museum was regarded by Mr. Gurney with much gratification, but we still require three other species to make the series of this genus complete.

Returning to the large room, a staircase will be noticed, ascending which we reach the gallery containing the remaining families of the birds of prey. In



LEUCOPTERNIS SEMIPLUMBEA LAWR.

## Case XXXIII.

will be found two exceptional genera, forming a link between the Buzzards and the true Hawks, and known as the Buzzard Hawks. The members of the genus *Poliornis* (*Butastur*) are found in Eastern and South-Eastern Asia with one exception, which inhabits Abyssinia and the adjacent countries of Africa, whereas the genus *Asturina* (*Melierax*)\* inhabits tropical America, and one species occurs in the West Indies. Their habits approach nearer to those of the Buzzards than of the Hawks, and they are probably more closely allied to the former than to the latter. In the next

## Case, No. XXXIV.,

we arrive at the true Hawks, a large family of nine genera, distinguished by their short wings and elongated tails. They are very widely distributed, some member of the family being found in almost every part of the world. A few of the more remarkable forms are *Urospizias wallacii* from Lombok, and *U. natalis* from Christmas Island; *Leucospizias albus*, the Great White Hawk of Australia, and *L. leucosomus*, the Lesser White Hawk of New Guinea, are remarkable as being the only Hawks which have pure white plumage. *U. rufitorques*, in

## Case XXXV.,

is a beautiful and rare bird from the Fiji Islands, and *U. melanochlamys* is striking for the lovely contrast of its rufous and black colours. *U. jardinii* (Gurney),

\* In Mr. Gurney's *List of the Diurnal Birds of Prey*, he sank the name of *Poliornis* in favour of *Butastur*, and limited *Asturina* to one species.

the type specimen of which is under glass shade, No. 19, was found by Mr. Gurney amongst some skins from the late Sir William Jardine's collection. It was figured in the *Ibis* for 1887, Plate III., and remains unique. Next follows the large genus *Accipiter*, containing some thirty species, scattered over the four quarters of the world and many of the oceanic islands. They are "all more or less closely related to our well-known Sparrow-hawk," says Mr. Gurney, "which, however, is itself a bird of extended geographical range, being found as far eastward as Japan." There are in the collection some very rare species belonging to this genus, a beautiful little Sparrow-hawk, found in China and Japan, known as Stevenson's Hawk, is now more generally recognised by its older name of *A. gularis*. Of this bird we have a fine series. The British Sparrow-hawk is also in this case, specimens of which are shown from widely distant localities. The whole of

#### Case XXXVI.

is devoted to birds of this genus, amongst which should be noticed *A. minullus* from Damara Land, *A. hartlaubi* (type specimen) from Bissao, West Africa, *A. rufotibialis*, and many others. The first three shelves in

#### Case XXXVII.

also contain some rare Sparrow-hawks, notably a fine series of *A. melanoleucus* from Natal, in all stages of plumage. Several of the specimens in this genus have been figured either in the *Ibis* or in Sclater and Salvin's *Exotic Ornithology*. On the bottom shelf of this case are a fine series of birds of the genus *Scelopspizias*, including *S. pusillus* (Gurney), figured

by Joseph Wolf, in the *Ibis*, 1864, Plate VII.; and one of the African short-toed Hawks, which also extend into

#### Case XXXVIII.,

where will be noticed *S. unduliventer*, Rüppell's Hawk, from Cape Coast and West Africa, a bird with many synonyms, including *S. tibialis* (Verreaux), of which we have the type under bell glass, No. 20. Some beautiful birds of the genus *Cooperastur* will also be found in this case, amongst them the South American Capped Hawk, *C. pileatus*, *C. cooperi*, Stanley's Hawk, and the rare *guttatus* and *pectoralis*.

#### Case XXXIX.

commences the Goshawks. *Lophospizias*, the first genus, contains two or three species known as the Crested Goshawks, natives of South-Eastern Asia and the adjoining islands, followed by *Erythrotriorchis radiatus* from Australia, the Radiated Hawk, which brings us to the typical genus of the family *Astur*, first amongst which is *A. palumbarius*, the European Goshawk, now only a rare visitor to this country, but formerly much prized by falconers. It is a bird of great power and courage, inhabiting most parts of Europe, the temperate regions of Asia, and parts of Northern Africa. *A. striatulus* and *A. hensti* may be pointed out as very rare birds. Two of the equally rare West African Long-tailed Goshawks (*Urotriorchis macrurus*), from the Fantee country, one of which, the first ever brought to this country, was figured in the *Ibis* for 1870, are in this case, as well as *Melierax musicus*, the South African Chanting Hawk.

#### Case XL.

contains other species of *Melierax* and the co-type

specimen of *Micrastur amaurus* (Gurney), from Panama. *Geranospizias gracilis* and *G. nigra* are also very handsome and noteworthy species from South America.

### Case XLI.

introduces us to the last group of the diurnal birds of prey known as the Harriers. These birds have a distinct facial disk resembling that so noticeable in the Owls, and are therefore regarded by some systematists as a connecting link between the Hawks and the Owls. There is, however, no alliance osteologically between them. The single genus *Circus* contains, according to Mr. Gurney, eighteen species and one sub-species, all but three of which are in the Museum collection. They have a very wide geographical distribution, the range of some, as pointed out by Professor Newton in the *Dictionary of Birds*, being exceedingly wide, whilst that of others is very limited. Three species were formerly numerous in some parts of Britain, but their numbers have greatly decreased. In suitable localities in the County of Norfolk at the beginning of this century they were found in considerable numbers; but at the present day, from various causes, they are, especially the Hen Harrier, very rare birds. The collection contains a large series of Hen Harriers (*C. cyaneus*) from very various localities,—Persia, East Siberia, Himalaya, Nepal, Oudh, and Japan. Five adult males in a case by themselves in the British collection were killed many years ago in Cambridgeshire.

The nearly-allied species, *C. hudsonius*, from North America, is also represented by numerous specimens in all stages of plumage, also eggs collected by Mr. D. L. Thorpe. *C. macrurus*, Swainson's Harrier, a widely-distributed species, is equally well represented

by localities. The same may also be said of Montagu's Harrier (*C. cinereus*), of which there is a melanistic variety, killed in France.

#### Case XLII.

is also devoted to the Harriers. There are three specimens of the rare *C. maillardi* [and in small Case 21] from the Island of Reunion, to which this bird is confined; but unfortunately ours are all immature. The type of *C. macrosceles*, obtained by Sir Edward Newton in Madagascar, also other specimens, ten in all, of this Harrier will be found in small Cases 22 and 23. A very prettily-displayed example of *C. maculosus* from Brazil will be noticed.

#### Case XLIII.

contains the remainder of the Harriers, consisting of a fine series of *C. approximans*, Gould's Harrier, an Australian species, and an even larger series of *C. æruginosus*, the British Marsh Harrier, from South Africa, India, and other localities. This splendid array of Harriers consists of 268 mounted birds and skins, several skeletons, and many eggs.

#### STRIGES.

The *Striges* or Owls are quaint but beautiful birds, clothed in soft and abundant feathers, noiseless in flight, at night keen of sight, having eyes peculiarly adapted for adjustment to their nocturnal habits, and ears furnished, in some species, with orifices of extraordinary dimensions. A singular feature in certain of the owls is the presence of two tufts of feathers on the head, known as "Ears" or "Horns;" the absence or otherwise of these tufts of feathers has, since the time of Willoughby, been made



the basis of a convenient but not very trustworthy classification, by which the order has been divided into two main groups, the Horned and the Hornless. No birds are more persecuted than the British Owls, and none are greater friends of man, the small rodents which form their chief food being perhaps the worst enemies the agriculturalist has to contend with. The total number of species and sub-species recognised by Mr. Gurney is 268, of which the Museum possesses 195.

#### Case XLIV.

commences the series of Horned or Eared Owls, the "Hibous" of the French, birds in which the auditory opening is greatly developed. Almost the first species is a well-known British Bird, the Short-eared or Woodcock Owl, so-called from its arrival in autumn, being generally simultaneous with that of the Woodcock. This bird not many years ago bred in the fen-lands of Norfolk, but has now virtually ceased to do so; it has the widest geographical range of any Owl, being found in all the four quarters of the globe. Next in order is the genus *Otus*, which also contains a well-known British species, the Long-eared Owl, a pined example of which, singular for its rarity, will be found in the collection of British Birds. *O. madagascariensis* is the representative species in Madagascar, as its name implies, of which the collection contains five specimens. The extensive genus *Scops* follows next, containing a larger number of species than any other genus, all possessing a strong family likeness. Some of these are of very diminutive size, and are found dispersed nearly all the world over. First, however, must be noticed an offshoot of *Scops* which has been assigned to a genus of its own, *Heterosops luciae*, found on the Kina-balu mountain in North Borneo at

an elevation of 8,000 feet above the sea. Of the true Scops Owls, some of the most remarkable in the collection, are *S. erythrocampe* from Canton, the type specimen, described in the *Ibis* for 1874; *S. pryeri* (Gurney) from Loo Choo Island, also a type and described in the *Ibis* for 1889; *S. elegans*, a very pretty species from the same locality; *S. sibutuensis* from the Philippine Islands, a co-type; *S. ustus*, a type, from the Upper Amazon (small Case No. 25); *S. nudipes* from Costa Rica; and *S. hambrœcki*, yet another type-specimen, from Formosa. One species of this genus, *Scops zorca* (Gould) (*S. giu* of Yarrell's British Birds), is an occasional visitor to Great Britain, and has been met with in Norfolk. It is a woodland species subsisting on insects and occasionally small rodents.

#### Case XLV.

contains other rare Scops Owls, notably *S. kennicottii* from Chilliwack; *S. senegalensis* from Gaboon; and *S. minutus*, a pretty little Scops from Ceylon. A singular tufted species, allied to the Scops Owls, *Lophostrix stricklandi*, from Guatemala, will be found in the small Case numbered 26.

#### Case XLVI.

In this case are a good series of Fishing Owls of the genus *Ketupa*, of which there are three fine species from Northern India, Malacca, and Ceylon; these Owls prey chiefly on crabs, and it will be noticed that their tarsi (the lower bone of the leg) are practically divested of feathers. A small but elegant species, Gurney's Eagle Owl, *Pseudoptynx gurneyi* (Tweeddale), and two examples of *P. philippensis* are succeeded by a third example of the same genus named *P. blakistoni*, after the discoverer, the late Captain T. W. Blakiston,

of Thorpe, by whom it was obtained in Japan; there is also a skeleton of this bird. This fine bird introduces us to the true Eagle Owls of the genus *Bubo* found in Europe, Asia, Africa, and America, the first of which is *Bubo pacificus*, from Chilliwack in British Columbia, and on the bottom shelf are fine examples of the North American Eagle Owl *B. virginianus*.

#### Case XLVII.

contains *B. maximus*, a species which has a very wide geographical range. It has occasionally been met with at large in the British Isles, but whether wild birds or escapes, is not certain. The nestlings here shown are from Amoy. The specimens of *B. sibiricus* in this case are from the river Volga. In

#### Case XLVIII.

the Eagle Owls are continued, the next genus being that of *Urrua*, represented by one species only, to which succeeds a fine series of *Huhuas*, *H. leucosticta*—the white-speckled Eagle Owl—a rare and beautiful owl under a glass case, a native of the Fantee country, being specially worthy of note, as is also *H. shelleyi*, another Fantee species under the small shade, No. 30. In

#### Case XLIX.

are two beautiful examples of Pel's Owl, *Scotopelia peli*, one from Gambia, which was figured from life in the *Ibis* in 1857, the other from Zambesi, collected by Charles Livingstone. The type of Ussher's Owl (*S. ussheri*), a very rare species from the Fantee country, Western Africa, will be found under glass shade, No. 31. Other rare Owls are *Tybo* (*Myrtha*) *wiepkeni*, Whitehead's Wood Owl from the Island of

Palawan in the Indian Ocean; the beautiful Owls of the American genus *Cicaba*, *C. nigrolineata*, and *C. huhula*, the former from Mexico and the latter from the Upper Amazon should not be passed over.

#### Case L.

introduces us to the genus *Syrnium*, among which should be noted *S. alleni* from Florida, and *S. occidentale*, a single specimen obtained in California. At the bottom of the case will be seen a fine series of the European Brown Owl (*S. aluco*), much persecuted by game preservers, but still found in our own woods as well as dispersed over most of the continent of Europe and some parts of North Africa and Asia. The Ural Owl is, as its name indicates, from the Ural Mountains.

#### Case LI.

commences with the Lapp Owl, a magnificent species, of which there is a grand series, for the most part collected in Lapland by the late John Wolley; these are followed by the equally beautiful Snowy Owl *Nyctea nivea (scandiaca)* an inhabitant of most of the northern portions of Europe, Asia, and America, and occasionally visiting Great Britain, and even our own county; local specimens will be seen in the British collection. Then follow the Owls of the genus *Nyctala*, including Tengmalm's Owl, an occasional visitor to Britain; it has occurred three times in Norfolk, but its true home is the forests of Scandinavia and Russia. *Gisella harrisii*, Harris's Owl, is a rather uncommon species from Bogota, South America; a pretty little owl known as Whitney's Owl from Lower California; and this is followed by *Microptynx passerina*, the smallest of European Owls.

The remainder of the case is devoted to Owls of the genus *Glaucidium* from South America, remarkable for their small size, *G. pumilum* being the smallest Owl known.

The first genus in

### Case LII.

is a remarkable one. It consists of the American Burrowing Owls (*Pholeoptynx*). These birds inhabit holes in the ground, frequently those formed by some burrowing rodent, particularly the Bizcacha, but on occasion probably excavate for themselves. They are sociable birds not only amongst themselves, but Mr. J. K. Lord, in British Columbia, found in one hole a female Washee, a Burrowing Owl with her two eggs, and a Green-racer Snake. A remarkable bare-legged Owl (*Gymnoglaux nudipes*) from the West Indies, collected by Professor Newton and figured in the *Ibis* for 1859, p. 64, will be found in small Case 34. *Microglaux brodiei* is a pretty little Indian species, and this is followed by *Athene noctua*, the Little Owl of British ornithologists, which like Tengmalm's Owl is an occasional visitor to this country, straying from its true home, in Southern and Western Europe. This species was dedicated in ancient Greece to the goddess Athene, and regarded as emblematical of wisdom, it may be, as has been suggested, in a spirit of sarcasm. In

### Case LIII.

are a number of rare species from New Britain and Australia of the genus *Spiloglaux* and *Hieraglaux*, some of which deserve mention did space permit; these are followed by another striking series of birds of the genus *Ninox*, the first, *Ninox goldii*, is the type

specimen from New Guinea; *N. spilocephalus* is from the Philippine Islands; and a third, *N. theomacha*, Hoedt's Ninox from New Guinea, is remarkable for the richness of its colour.

#### Case LIV.

contains other species of *Ninox*, and a very rare and abnormal Owl from New Zealand, known as *Scelog'aux albifacies*, the New Zealand Laughing Owl, and rapidly becoming extinct, which should not be overlooked; this specimen, now somewhat faded, was excellently figured by Gould in the supplement to his magnificent *Birds of Australia*. Then follow the Screech Owls, the first genus of which is *Scelostrix*, its members are found inhabiting Natal, Formosa, Assam, and the Philippine Islands, and are known as Grass Owls; they bear a close resemblance to our Barn Owl. The last two shelves in this case contain the first specimens of the genus *Strix*, in many respects a very remarkable one. Mr. Gurney enumerates ten species and eight sub-species; of these 18, thirteen are represented in the collection. The series commences with the Neotropical *Strix perlata*, examples of which will be found from Brazil, Chili, Peru, Guiana, Antioquia, Para and Ecuador, also Central America; and *S. pratincola* from Mexico, Guatemala, California, Cuba, Jamaica, Trinidad, Granada, and Pennsylvania. Proceeding to

#### Case LV.

we come to the European Screech Owl, *Strix flammea*, the cruelly persecuted but still familiar "Barn Owl," examples of which will be found from the following localities, Denmark, Heligoland, England, France, Spain, Madeira, Syria, Morocco, Egypt, Nubia, Abyssinia, &c. The northern form of Screech Owl

is represented by rufous-tinted examples from Funen and Heligoland. Like specimens have also occurred in this county, doubtless migrants from Scandinavia. There are other members of the genus *Strix*, among which may be mentioned *S. delicatula*, the Delicate Owl from Australia; a larger form, *S. novæ-hollandiæ*; the Masked Owl from Australia; *S. castanops*, the Chestnut-faced Owl from Van Dieman's Land; and *S. arfaki*, the Sooty Owl, a melanistic species from New Guinea. *Heliodilus soumagnei*, a rare and little known Owl from Madagascar, is followed in the collection by three species from Borneo, India, and Ceylon, belonging to the genus *Photodilus*, known from their colour as the Bay Owls, the last of this remarkable and widely-dispersed group.

In the above brief and imperfect sketch of the fine collection of Birds of Prey, the writer's object has been, by pointing out the more remarkable forms and the system of arrangement adopted—showing the connecting links between the various groups—to add to the interest with which the visitor cannot fail to regard the extensive series of beautifully-mounted specimens, many of them from very remote parts of the world, and some of great rarity; but for scientific study the visitor must be referred to the unmounted collection to be found in the cabinets of

### The Skin Room,

which is entered by a door between the two staircases leading up to the gallery. Here are to be seen, arranged in the drawers of the cabinets ranged round the wall and in the centre of the room, large numbers of skins in the most available form for close study, which will be found of invaluable help to the student. These are, of course, under the immediate

charge of the Curator, and special application to him will have to be made by those who desire to use them for the purpose of study.

Ascending the spiral staircase in the Skin Room a gallery will be reached containing a number of cabinets devoted to the

### Collections of Insects.

These comprise the collections purchased from Mr. Sparshall and Mr. Simon Wilkin, which were arranged and added to by the Rev. William Kirby. Of late years the British *Lepidoptera* have been re-arranged by Mr. C. G. Barrett, who made large additions, Lord Walsingham also contributed. The cabinets of *Hymenoptera* and *Coleoptera* have also been entirely re-arranged and enriched, the former by Mr. J. B. Bridgman and the latter by Mr. James Edwards. There is also a large cabinet of Exotic Insects.

An important recent addition has been made in this department by the generous gift of his entire collection of *Hymenopterous* insects by Mr. Bridgman, as well as of 32 volumes of books, and several manuscripts devoted to the same subject. The collection is a very extensive one; it is contained in two cabinets of thirteen drawers each, and six boxes; the insects are beautifully set, and a large number of them of great rarity; they represent the labour of many years in a department of Entomology in which Mr. Bridgman is a recognised authority.

Leaving the Skin Room and continuing along the corridor to the right—the Birds of Prey in the wall case having already been described—we pass on the left two table cases and three small glass wall cases devoted to the Nests and Eggs of Foreign Birds, of which at present there is not a very extensive collec-



tion, and enter the room containing the first portion of the

### General Collection of Birds

these, though acquired more by chance than on any particular plan, will be found to include a large number of the most remarkable types, as the Museum has been fortunate in times past in receiving many contributions of importance and interest, among these may be especially named those of Captains Glasspoole and Owen Stanley—the last while commanding H.M.S. *Sulphur*, which was long engaged in exploring the Australasian Seas—Mr. J. S. Chapman, formerly staff-surgeon to the Forces in India, Sir John Boileau, the late Mr. J. H. Gurney, and recently from Lord Hastings.

#### Case I.

commences with the family CORVIDÆ, the Crows, a very numerous one, and of wide geographical range. The Raven, Black and Grey Crows, Rook and Jackdaw, are well-known British representatives of this family. But here will be seen the eastern *Corvus splendens* of India, and *C. macrorhynchus* from the Andaman Islands; the White-eyed Crows, *C. australis*, from Port Curtis; and the large-billed white-necked *Corvultur* from South Africa. Here too belong the Nutcrackers, of which several species inhabit the mountain forests of Europe and Asia, while one occasionally visits England. Then follow the Magpies and Jays, though it is hard to separate one or the other in some of the tropical forms, such as the long-tailed crested *Calocitta formosa* of Mexico. These are often of great beauty, as for instance the Red-billed Blue Magpie of the Himalayas, *Urocissa erythrorhyncha*. The Blue-

winged Magpies, *Cyanopica*, are of interest, as showing one of the most remarkable and at present unaccountable instances of interrupted geographical distribution. Of this genus there are two species, one *C. cooki*, being found only in Spain and Portugal, where it is very local, and the other, *C. cyanea*, in Japan and Amoorland. The Jays cannot fail to attract attention, and among them especially the common Blue Jay of North America, *Cyanocorax cristatus*. An interesting bird too is the so-called Australian Chough, *Corcorax melanorhynchus*, with its white wings. Then follow the gorgeous Birds of Paradise, fairly represented in our series. These beautiful birds—in which Nature seems to have run riot both as to the lavish display of superb metallic colours and eccentricity of plumage not even surpassed by the humming birds—are almost entirely confined to New Guinea and the adjacent Isles and North Australia; there are something like fifty known species, all more or less adorned, and it is difficult to imagine that they are closely allied to our familiar crows.

The lamentable fate which awaits this rare and strictly localised race of birds, may be imagined from the fact that *sixty thousand dozen* of their plumes, mixed with those of the Egret, were disposed of by a single warehouse in the season of 1895. But too surely this, one of the most lovely of all the families of birds which beautify the earth, will speedily be exterminated to gratify female vanity, and the world will be bereft of one joy more by the loss of this thing of beauty.

These are followed by the Rifleman Birds of Australia, so-called from the dark green hues of their plumage somewhat resembling the uniform worn by those regiments; but it will be seen that their resplendent hues far surpass the sombre tints of their namesakes;



THE BOWER BIRD.

*From Gould's "Birds of Australia."*

the rare Victoria Rifle bird is a very beautiful example. Next are the Bower birds, also of Australian origin, and remarkable for the curious structures which they raise, ornamented with shells, stones, and any brightly-coloured object; these "runs," as they are called, seem to serve no other purpose than that of a playground for the birds, and appear to be built by the males to attract the opposite sex; the Satin Bower bird from New South Wales is the type of the family. Next in order are the beautiful Regent Birds found in Eastern Australia. Then comes the STURNIDÆ, including our familiar Starling and other forms, some of which have plumage glowing with metallic colours. Closely allied to the Starlings are the Indian Mynas, placed by Dr. Mivart in a separate family EULABETIDÆ, commonly called Grakles, an interesting class of birds, and from their excellence as mimics great favourites as cage-birds. The Southern Grackle, *Gracula religiosa*, is remarkable for a curious wattle of bare skin of a bright yellow colour, which, beginning on either side the head behind the eye runs backward, forming a conspicuous lappet, and returns in a narrow stripe to just above the eye. Other birds of this family will be found in

### Case II.

from Amoy, Nepal, &c. A lovely bird, the Shining Aplonus, a rare and beautiful Australian species, is in close proximity. The Ox-pecker (*Buphaga africana*), an inconspicuous bird found throughout most parts of Africa, has much the habits of the starling, and is useful in ridding the cattle of the parasites with which their hides are frequently infested.

Next follows the large and beautiful family of DICRURIDÆ, the King Crows or Drongos. *Chibia bracteata* appears to be the only Australian representa-

tive, but various species are found in Africa and Asia; they are very handsome birds, the large Indian Racket-tailed Drongo (*Edolius*) being perhaps the most conspicuous. For beauty of plumage and purity of colour few birds are more noticeable than the ORIOIDÆ or Orioles, which come next in succession, and of which there are numerous examples in the collection; there are only two genera, but a considerable number of species, inhabiting temperate Europe, Africa, Asia, and the Australian region, where only are found the birds of the genus *Sphecotheres*, specimens of which will be noticed in the collection. The numerous family of ICTERIDÆ, peculiar to and most characteristic of America, is well represented here; it consists of the Cassiques and the Hangnests; notable among the former are the curious Crested Cassique (*Ostinops*) and the yellow Cassique (*Cassicus*), both from Central America. Another remarkable bird is the Purple Grackle or Crow-Blackbird (*Quiscalus major*), found in the Atlantic States of America. This leads us to the large family PLOCIDÆ or Weaver birds, to be found in

### Case III.

The beautiful Old-World Finches of the genus *Vidua*, are remarkable for the greatly elongated tail feathers assumed by the male bird in the breeding season, *V. paradisæa*, the long-tailed Wydah Bird, is a good example. The contrasts of glossy back, gold colour, and brilliant crimson are very lovely, but the plumage of the female is much more homely. The Bishop Bird (*Pyromelana oryx*), a nearly-allied species, is also a very attractive bird, the velvety plumage of red and black forming a pleasing contrast; this species is often imported as a cage-bird. The South African Diamond Finch is a charming little bird, near to which will be

seen the Java Sparrow, *Munia oryzivora*, and a number of pretty little Spotted-sided Finches from India and Australia, all of which are also well-known favourites as cage-birds. The Whiteheaded Java Grosbeak (*Munia maja*) is a conspicuous bird. Two rare Australian Grass Finches, *Poephila*, should also be noticed; then follow the Wax-bills of the genus *Estrilda*, the Amadavade Finch, *E. amandava*, and the beautiful Madagascar Cardinal *Foudia madagascariensis*. These again are succeeded by the Tanagers, another of the characteristic American families, of which the two genera, *Procnias* and *Calliste*, inhabitants of the humid forests of South America, contain some lovely examples, but all are brilliant plumaged birds. *Cissopis leveriana*, a South African Magpie Shrike, is a remarkable bird, and the pretty little South American Warblers of the genus *Dacnis*, although not so striking in appearance, are interesting.

From these we pass to the great family of Finches, FRINGILLIDÆ, commencing with the Indian and South American Grosbeaks, and the beautiful North American Cardinal Bird (*Cardinalis virginianus*); the Canary Finch, the Rock Sparrow (*Petronia*) of South Europe, and many species of Buntings (EMBERIZINÆ). These are followed by one of the least marked families of *Passeres*, the ALAUDIDÆ or Larks, of which there are many; the MOTACILLIDÆ or Wagtails and Pipits; a very handsome species known as the Cape Lark (*Macronyx capensis*) is usually associated with the latter; the very characteristic family, MNIOTILTIDÆ or American Warblers, containing many genera, among them, especially to be noticed, that of DENDRÆCA; and the Tree Creepers or CERTHIIDÆ, containing amongst other species our own familiar Tree Creeper, the Wall Creeper, and the Australian White-throated Creeper (*Climacteris*), of

which latter a specimen will be observed—the case coming to an end with the family of the Nuthatches (SITTINÆ), consisting of numerous species comprised in three genera.

There are also two large separate cases containing miscellaneous collections of brilliantly-plumaged birds arranged for effect, and comprising some of the most beautiful known species, among them some brilliant Cotingas and Rock Manikins. The first two shelves at the top of

#### Case IV.

are devoted to the Honey Eaters, a very numerous and remarkable family confined to the New Zealand and Australian Regions. One of the most interesting members of this family is the Tui or “Parson Bird,” so-called from the two white tufts on the throat having somewhat the appearance of a parson’s “bands”; the Australian Bell-bird (*Myzantha melanophrys*) (not to be confounded with the South American Bell-bird) is another member of this family. Mr. Gould says the note of this bird may be compared to the sound of a distant sheep-bell, and that when poured out by a hundred throats from various parts of the forest, it has a most singular effect. The beautiful long-tailed *Promerops cafer*, from the Cape of Good Hope, is also placed hereabouts. These are followed by lovely Sunbirds from South and West Africa, and Honey Suckers from India and the Malay countries, charming little long-beaked creatures rivalling the humming birds in brilliancy. Pretty little Flower Peckers (DICÆIDÆ) from Australia give place to the White-eyes (*Zosterops*), a very numerous genus, and Honey-eaters (*Melithreptus*), from Australia. It is impossible to particularise these lovely forms in the space at our command, but they should not be passed

over hurriedly. Then follow the various Titmice PARIDÆ, a very numerous family, widely dispersed chiefly in Europe, Asia, and North America, several species are familiar to us; and the tiny Gold Crests, two of which are also known to this country. These delicate little fellows are followed by the LANIIDÆ or Shrikes, the curious Australian Piping Crow and the Crow Shrikes taking the lead, to be succeeded by the Shrikes proper, a large and widely dispersed sub-family inhabiting most parts of the world, and known to us at home by four or five species; also a curious crested white-headed bird known as Geoffrey's Shrike (*Prionops*) from West Africa. The Australian Wood Swallow (*Artamus*), the genus *Ampelis*, represented by the European Waxwing, an occasional winter migrant to this country, and the American Cedar Bird, the Icterine (*Hypolais*), and other warblers; the curious little long-tailed Emeu Wren (*Stipiturus melachurus*), and the pretty little birds of the genus *Acanthiza*, both the latter natives of Australia, bringing us to the end of the case.

#### Case V.

commences with the extensive family of TURDIDÆ, of which the typical genus, *Turdus*, contains some of our most highly prized song birds, such as the Song Thrush and the Blackbird, as well as some interesting migrants, the Redwing, the Fieldfare, and others to be found in the British Bird-room. A few of the more conspicuous forms are White's Thrush (*Turdus varius*), the Rock Thrushes (*Monticola*), of which the Blue Rock Thrush (*M. cyanus*) (supposed to be "the sparrow that sitteth alone on the house-top" of our Scriptures) from the Mediterranean shore, is a beautiful example, and the Bluebirds (*Sialia*) from North



America. These are followed by the Redstarts (*Ruticilla*), represented by two species in this country; another pretty example is the Himalayan Water Robin (*R. fuliginosa*)—and *Saxicola*, a very extensive genus to which our familiar Wheatear belongs, a bird having a very wide geographical range extending over the whole of Northern Europe and Asia, and even reaching Alaska. Most of the various species by preference inhabit desert tracts and occur throughout the Asiatic and the African continent. Passing on we notice a singular-looking bird, the position of which is very uncertain, *Grammatoptila striata*, with peculiarly striped feathers; *Myiophoneus temminckii* is another bird of striking appearance, with a beautiful purple tail, as also *Copsychus saularis*, the Indian Magpie Robin. Then follow the Dippers, CINCLIDÆ, containing a single genus represented in Europe by *Cinclus aquaticus*; also the North American Cat Bird, *Galeoscoptes carolinensis*, and other birds of the family MINIDÆ, known from their extraordinary vocal powers as “Mocking Birds.” Passing on we notice the Australian Spotted Ground Thrush (*Cinclosoma*) and the White-eyebrowed *Pomatorhinus*, of which there are several species also from Australia. Close by are *Garrulax albigularis* and *G. leucotophus*, two noticeable species from the Himalayas, and a host of birds rejoicing in the name of “Babblers.” *Henicurus maculatus* is a remarkable plumaged bird from the Himalayas, well named the Forktail; then follow what are known as the Indian “Bulbuls.” The genus *Chloropsis* contains beautiful green birds from the Malay country and Borneo, the Crested Otocompsa from India, and *Otocompsa jocosus* from China, with lovely blue and black *Irena criniger* from Borneo. These are succeeded by the Cuckoo Shrikes, *Gracula*, from Australia, and several lovely Indian species

of *Pericrocotus* from the Andaman Islands and the Himalayas.

The next family is that of the Flycatchers, MUSCICAPIDÆ, and a very extensive one it is, containing some interesting and beautiful birds. We can only refer to a few of the numerous examples which will be found in the collection. One member of the family, the spotted Flycatcher, is a well-known British bird; there is a second species of the same genus, the Pied Flycatcher, but it is much more locally distributed. *Terpsiphone paridisi* is one of a very remarkable genus, it is known as the Paradise Flycatcher; nearly all the males of this group assume for the breeding season greatly-developed tail feathers, only to be equalled in the genus *Vidua*; for the rest of the year they are hardly distinguishable from the other sex. The male of the pair here shown is nearly white, the female on the other hand is a beautiful chestnut, but both have the crown of the head dark steel blue; this species is from the Himalayas. *Arses kaupi*, a very rare little Flycatcher from Rockingham Bay, Australia, will be noticed under a bell shade.

The last family of Section "A" (**Acromyodi**) of the sub-order PASSERIES is that of the Swallows, HIRUNDINIDÆ; the typical genus *Hirundo* is represented by our familiar Chimney Swallow, while the House Martin is now relegated to the genus *Chelidon*, and the Sand Martin to that of *Cotile*; these may be seen in the British Bird-room. This section is poorly represented here, there being only four species out of a total of seventy-two.\*

\* It must be understood that the number of species in any given family or genus, where mentioned is, as a rule, only approximate, and is quoted simply to indicate in some degree the extent of the group to which reference is made.

Section "B" of the sub-order PASSERIES, **Mesomyodi**, is a much less numerous one than the preceding ; it contains twelve families, all but three peculiar to the New World, the first of which, TYRANNIDÆ, is far the largest, comprising over 400 species, most of them confined to South America. *Cybernetes* is a striking genus containing only one species, *C. yetapa*, which inhabits S. E. Brazil, Paraguay, Bolivia, and the northern part of La Plata ; it is conspicuous for its long forked tail. Of the typical genus *Tyrannus*, the Pipiri *T. griseus* may be taken as an example ; it is found in North and Central America, Ecuador, and Peru. The Manakins, PIPRIDÆ, a brilliant family of South American birds of small size, may be represented by *Pipra aureola* ; its prevailing colour is red, the back, wings, and tail being black and the throat yellow. Near to this is the lovely Cock-of-the-Rock, *Rupicola crocea*, with its soft orange-red plumage and curiously helmeted head. The Chatterers follow, two of which, *Cotinga cometa* and *C. cerulia*, are beautiful birds, and the like may also be said of the genus *Xipholena*. A large richly-coloured bird, with brown back and tail, *Hæmatoderus militaris*, is sure to attract attention, and the same may be said of *Querula cruenta* ; in fact, nature has been lavish in the bestowal of lovely tints on these beautiful South American birds. A singular bird is *Gymnocephalus calvus*, a native of Demerara, a bare-headed crow-like individual of a reddish-brown colour with dark wings. A large white bird near by is equally noteworthy, if only from contrast with its brightly-coloured surroundings ; it is known as *Chasmorhynchus nudicollis*, and has a singular bare patch of skin on the throat ; but there is another snow-white bird of the same genus *C. niveus*, of which one specimen will be found in the wall case, and two others under a bell glass on one of the tables. This is the South American

"Bell Bird," so graphically described by Waterton in his "Wanderings." He says, speaking of this bird, "He is about the size of the Jay. His plumage is white as snow [when adult]. On his forehead rises a spiral tube nearly three inches long. It is jet black, dotted all over with small white feathers. It has a communication with the palate, and when filled with air, looks like a spire; when empty it becomes pendulous. His note is loud and clear, like the sound of a bell, and may be heard at a distance of three miles . . . . You hear his toll, and then a pause for a minute, and then another toll, and then a pause again, and then a toll, and again a pause. Then he is silent for six or eight minutes, and then another toll, and so on."

#### Case VI.

commences with the Pittas, a family of very quaint and beautiful birds, of which there are some forty-three species, all possessing a strong family likeness. They inhabit the Malay Archipelago for the most part, and attain their greatest beauty and variety in Borneo and Sumatra; but one occurs in Australia, one in China, and another in India. Few birds display more vivid tints and greater contrasts of colour than are found in the Pittas, which are fairly represented in the collection.

The DENDROCOLAPTIDÆ inhabit the vast forests of the warmer parts of S. America; they are remarkable birds with short, stiff tails, and strong, pointed, or very long curved beaks, and look somewhat like our Tree Creeper, which they however only resemble in their food and manner of life, being structurally far removed from them. There are several representatives of each form in the collection, the largest are the strong-billed members of the genus *Dendrornis*; *Xiphorhynchus*

has an exceedingly long slender and curved bill, and in *Nasica* the bill is long and straight. Several other genera are represented.

The next bird which calls for remark is one of the most extraordinary of the strangely-plumaged birds of which Australia furnishes so many examples; it is known from the curious form assumed by its tail feathers, as the Lyre-Bird, *Menura superba*. Gould gives an account of its habits in his *Birds of Australia*, and describes it as most difficult to obtain a sight of, its haunts being rocky and thick "brushes," where it may be heard for days together without being seen; the wonderful tail is not acquired by the male till his third or fourth year, and then only between the months of June and October; its food consists chiefly of beetles and snails. There are three species known, but it is feared that so remarkable a bird and one of such natural boldness of habit will not long survive.

We now enter upon the second sub-order of the great order PASSERIFORMES, namely EURYLÆMI, which contains two families only, those of the Green Broadbills and the Broadbills proper.

The Green Broadbills, CALYPTOMENIDÆ, are represented in the collection by three examples obtained in Borneo, they are quaint little birds, with helmet-like feathers on the upper mandible.

The third sub-order of the Passeriformes is that of the TROCHILI or Humming Birds, consisting of a single large family, TROCHILIDÆ, numbering some 476 species, confined exclusively to America, but extending on that continent from Alaska to Patagonia. We are so accustomed to associate birds of bright plumage with the sunny regions of the tropics, that it may be a matter of surprise to some to learn that these birds, the brightest of all, inhabit not alone the forests of South America, but certain species have been

seen "flitting about the fuchsias of Tierra del Fuego in a snowstorm," and in the north-west another species "in summer visits the Ribes-blossoms of Sitka," while others are found "just beneath the line of perpetual snow, at an elevation of some 16,000 feet, dwelling in a world of almost constant hail, sleet, and rain, and feeding on the insects which resort to the indigenous plants."

The Humming Birds in the collection have not yet been named and arranged, but the visitor will be able to distinguish among the 250 specimens most of the peculiarities of form and colour which characterise these remarkable birds.

### Case VII.

commences the second order of the **CARINATÆ**, namely, **CORACIIFORMES**, consisting of three sub-orders: (i) **CORACIÆ**, the Swifts and their allies; the Hornbills, numbering in all some 523 species.

(ii) **HALCYONES**, Kingfishers; and (iii) **BUCEROTES**,

The Swifts proper (**CYPSELIDÆ**) are poorly represented in the collection, although a numerous family; one is a well-known summer visitor to this country, and there are five other species met with in Europe, two of which have been killed in England. The builder of the edible "swallows' nests" is a Swift of the genus *Collocalia*. Next in order are the Nightjars (**CAPRIMULGIDÆ**), the typical genus of which is again a numerous one, members of the family are found nearly all the world over. One species is a common summer visitor to England, and two others are known in Europe. Numerous examples will be found in the collection; one remarkable bird, *Macrodipteryx* (*Cosmetornis*) *vexillarius*, the standard wing Nightjar of Central and Southern Africa, has one of the

wing feathers on each side enormously extended, so as to present a very singular appearance; another species will be observed to have two of the tail feathers elongated in the same extravagant fashion, so as to have obtained the name of the Lyre-tailed Nightjar. A very hawk-like bird, the only member of its family (*Steatornis caripensis*), met with chiefly in Trinidad, is known as the Oil-bird; it appears to be a fruit-eater. From Australia and New Guinea come the large birds of the genus *Podargus* and *Eurostopodus*, examples of which will be seen. We must pass on to the Rollers (*Coracias*) and Bee-eaters (*Merops*), some of which are superbly beautiful, and both families send us an occasional straggler from the shores of the Mediterranean; the Bee-eater is confined to the Old World, but the Rollers inhabit the whole of Africa, India, and Australia.

The second sub-order HALCYONES contains the Kingfishers; the birds of the genus *Halcyon* being conspicuous for their beauty, and the great Australian Laughing Jackass (*Dacelo gigantea*) is probably the most grotesque.

From the Kingfishers we pass to the Motmots, inhabitants of Central and South America. *Monotus braziliensis* may be regarded as the type.

#### Case VIII.

The first shelf of this case is devoted to the Hornbills, consisting of a single family but nineteen genera, containing more than 60 species, conspicuous for their unwieldy beak, usually adorned with a remarkable excrescence, which gained for them the name of "*Rhinoceros Avis*." The usual food of the Hornbills is fruit and seeds, supplemented by snakes and lizards in the case of the larger species, and insects in the smaller species.

The well-known Hoopoes, one species of which visits us occasionally, have a wide range in the Old World, particularly in Southern Europe. *Irrisor erythrorhynchus* is a near relative of the Hoopoe; it inhabits Cape Colony, and differs from that species in being strictly arboreal. The next sub-order contains the Trogons, the long-tailed Trogon or Quesal (*Pharomacrus mocinno*), being one of the most beautiful plumaged birds in existence. It would occupy too much space to attempt to describe this splendid bird, and even then justice could not be done even to the faded beauty before us; how much more therefore would words fail to convey an adequate idea of the golden greens, and vivid scarlets of the living bird, and the flashing light refracted from the filamentous feathers of the scapulars and rump, or the beautiful central feathers of the tail more than three feet long and in constant motion. This bird alone is worth a journey to Guatemala to behold. Some of the other Trogons are very lovely birds, *Harpactes kasumba* has a beautiful black head and throat, with crimson chest and long tail.

The Jacamars (GALBULINÆ) are interesting South American birds, somewhat resembling the Kingfisher, with the habits of a flycatcher. Two singular birds, *Myiophobus gymnocephala*, male and female, from Sarawak, should not be passed without notice; and this brings us to the large and striking family of the Woodpeckers, which are too numerous to particularise; the pretty little *Picumnus pigmeus* should, however, be noticed. These are followed by the Wrynecks, one species of which is a well-known summer visitor to this country, to be in turn succeeded by the Honey Guides, represented by *Indicator minor*. These birds are related to the Cuckoos, and like them lay their eggs in the nests of other birds. They are found in Africa, the Himalayas, Malay Peninsula, and Borneo.



In Africa it obtains the name of Honey Guide, from its habit of guiding the natives to trees in which bees have formed their nests, hoping to obtain its share of the young bees in the comb.

### Case IX.

The gaudy but rather uninteresting-looking family of birds known as Barbets occupy the first shelf of this case. Following these is the remarkable family of RHAMPHASTIDÆ or Toucans, consisting of five genera and about 59 species; handsome but strange-looking birds, with bills apparently out of all proportion to their size, in this respect almost vieing with the Hornbills; but unlike the same appendage in the latter bird, in the Toucan the bill is as remarkable for its lightness as it is for its size.

The Plantain-eaters or Turacous (*Musophaga*), are handsome birds, restricted to Western Africa. Three species are in the collection, *Turacus buffoni*, a green-plumaged bird; *Musophaga violacea*, in which the prevailing tint is violet; and *Schizorhis africana*, a dull-coloured crested bird. Most of these birds have beautiful red wing-primaries, but the colour is soluble in water, and after a shower the quills become pale; a few days however restores them to their pristine brilliancy. The Cuckoos, which are represented in this country by our well-known summer migrant, form a numerous and widely dispersed sub-order, absent only from the coldest regions of the earth.

The Pigeons are too numerous to mention in detail, but a pretty white-breasted bird, with pink head from the Malay Archipelago, belonging to the genus *Ptilopus*, should be noticed; a beautiful Fruit Pigeon from Torres Straits, white with black primaries (*Carpophaga luctuosa*), has a very chaste appearance; a lovely little

bird, *Geopelia tranquilla*, the Australian "Peaceful Dove," is in close proximity to the largest of the race, the magnificent Crowned pigeon of New Guinea, *Goura coronata*. Perhaps one of the most beautiful of the pigeons is the Nicobar Pigeon, remarkable not only for the iridescent hues of its plumage, but also for the long sword-shaped feathers which adorn its neck. Allied to the doves is the curious bird known as the Tooth-billed Pigeon (*Didunculus strigirostris*), an inhabitant of the Samoan Islands. This bird is interesting from its fancied resemblance to the extinct Dodo, hence it has been called the Dodlet, intended as a diminutive of Dodo. The resemblance however appears to be rather fancied than real. Nearly allied are the Sandgrouse, in one genus of which, *Syrrhaptes*, is the bird whose strange and unexpected visits to Europe have been mentioned when speaking of the British collection, in which specimens killed in this county may be seen. This remarkable bird is appropriately named *Syrrhaptes paradoxus*.

#### Case X.

is a very attractive one, containing the birds of the sixth order, PSITTACI, of which there are six families, containing some 500 species. Many of these are familiar to us as cage-birds—Parrots, Lories, Cockatoos, Macaws, and Parrakeets, forms which are so well known as to require no general description; but others are very rare and remarkable birds, not the least so those belonging to the first family NESTORIDÆ. These are fruit and insect eaters, with one apparently abnormal exception, and are entirely confined to the New Zealand region. We are fortunate in possessing examples of three of the five species; the first of which is *Nestor meridionalis*, the "Kaka" of the

natives. In a separate case will be seen *N. notabilis*, the "Kea," a powerful bird, larger, but bearing a close resemblance in form to the preceding; it is finely coloured, with subdued shades of purple-brown, crimson, and orange; like its fellows it has a strongly-hooked beak, and appears quite equal to the evil habit it has developed of attacking sheep, even when alive, and penetrating through the skin to internal organs, thus causing the death of the animal. Probably the practice of this habit has been much exaggerated, but it has doubtlessly pronounced the death warrant of the race, which is said to be rapidly decreasing in numbers. The third species, which will be found under a separate glass shade, is *Nestor productus*, the extinct Phillip Island Parrot; this is one of the treasures of the Museum. So far as is known with certainty this bird was entirely confined to the small island named, adjacent to Norfolk Island, but it may be that a *Nestor*, also extinct, formerly found on the larger island was identical.

The next family is that of the Lorikeets, comprising a considerable number of genera, and among them some of the most richly-coloured birds known. It is impossible to refer to them in detail, but one of the most singular forms is *Coriphilus notata*, and one of the most beautifully coloured, is Swainson's Lorikeet. Of the Cockatoos, all of which are confined to the Australian region, the fine Western Black Cockatoo, *Calyptorhynchus naso*, the yellow-cheeked *C. funereus*, and the handsome red-tailed *C. banksii*, should be noticed; the Ganggang Cockatoo is also a noble bird, and the familiar Sulphur-crested Cockatoo will be recognised, also the Rose-breasted *C. eos*. Then follow the Macaws, conspicuous among which is the Great Blue and Yellow Macaw of South America (*Ara*

*ararauna*) ; and *Conurus pertinax*, a handsome yellow-faced species. *Psittacula cana* is a pretty little grey-headed species from Madagascar, and *P. galbulus* is also a lovely little bird. The handsome specimen of *Chrysotis amazonica*, a South American species, lived in confinement more than thirty years. *Pæocephalus robustus*, Levaillant's Parrot, from the Cape of Good Hope, is another fine bird, which is followed by the those of the genus *Psittacus*, containing our well-known Grey Parrot from Western Africa, and some other interesting birds. Several beautiful Rose Parrakeets, among them *Palæornis alexandri*, claim our attention, *P. affinis* from the Andaman Islands is also a charming species, as well as a Crimson-winged Australian Parrot of the genus *Ptistes* and the King Lory from the same continent, of which the male is a brilliant scarlet and the female an equally lovely green ; and this remarkable difference in the colour of the sexes is observable from their first plumage. *Loriculus vernalis*, a pretty green Parrot from the Andaman Islands, and two beautiful birds of the genus *Platycercus*, the Rosella or Rose-Hill Parrakeets, are well-known cage favourites. Another beautiful and rare bird from Moreton Bay, is *Psephotus pulcherrimus*, near to this is the Crested New Holland Parrakeet, which makes itself quite at home in this country in confinement. Another well-known species, *Melopsittacus undulatus*, the pretty little Grass Parrakeet, breeds readily in our aviaries. There are a number of small long-tailed Ground Parrakeets, which it is impossible to mention, but the last family containing one genus only cannot be passed over without special notice. This singular and handsome bird, known by the natives of New Zealand, where alone it is found, as the "Kakapo," Ground, or Owl Parrot (*Stringops habroptilus*), is nocturnal in its habits, hiding by day in

holes, which are believed to be excavated by itself, or under rocks or roots, incapable of flight, and singularly owl-like in appearance, it strikes the observer as belonging to a past fauna, and indeed it is believed "to be one of the primitive forms of *Psittaci*;" there is every reason to fear that this bird, like the *Nestors*, will soon cease to exist.

Of the next or seventh Order, RAPTORES, containing the Birds of Prey, both Diurnal and Nocturnal, a full description has already been given; they will be found in the rooms devoted to the Gurney collection.

Passing to

#### Case XI.

we commence with the Pelicans, of which we have *Pelecanus onocrotalus*, the best known representative, occurring in South-eastern Europe, South-western Asia, and North-eastern Africa; a fine species from Tasmania, *P. conspicillatus*; also the much smaller American *P. fuscus*; the Gannets and Boobys follow, of the former *Sula bassana*, the Solan Goose or Gannet of our seas, will be found in the British collection, and *S. piscator* from New Guinea in the case before us; next is the genus *Phalacrocorax*, or Cormorants, of which there are examples from several parts of the world, and *Plotus*, the Darters or Snake Birds, inhabitants of South America, India, and Australia; there are only four known species, one of these is doubtless familiar to those who have visited the fishhouse at the Zoological Gardens, where it may frequently be seen spearing its prey on the sharp bill, which terminates its long and snake-like neck and head. The second family PHAETONTIDÆ, is restricted to the Phaëthons or Tropic Birds, handsome white birds with the middle feathers of the tail greatly elongated; of these we have two species, one distinguished by

having the long tail feathers red; and the third family is that of TACHYPETIDÆ, or the Frigate Birds, of which we possess both species—*T. aquila* from the Island of Ascension, and *T. minor*, killed at Moreton Island, Australia.

We now come to a very interesting group of birds, forming Order nine, HERODIONES, and containing the Herons, Storks, and Ibises, estimated at about 134 species. The type of the first family is our familiar Heron (*Ardea cinerea*), which is found throughout Europe, Africa, and Asia, extending to Japan and Australia; an example from China will be seen in the collection. There are several other representatives of this large sub-family, notably a beautiful white-fronted Heron (*Ardea novæ-hollandiæ*) from Cape York, a white-necked Heron (*A. pacifica*), and some pretty small species from India and China. The first bird to attract our attention in

#### Case XII.

is the Little Egret (*Ardea garzetti*), which has a melancholy interest, it being one of the birds so cruelly persecuted by the world of fashion, who covet its beautiful nuptial plumes, called "Ospreys" in the feather trade, for the adornment of their persons. There are several species of these birds, all alike beautiful, found in different parts of the world, and endowed with that fatal gift of drooping filmy plumage, which at a certain period of the year renders them so conspicuous.

After the Egrets are the Bitterns and Night Herons, one species of the former was formerly common in this county, and is still met with every winter; the Night Heron is a rarer but almost regular visitant in spring or summer; both genera have a wide distribu-

tion in the Old and New World. The Boat-bill (*Cancroma cochlearia*), so called from its capacious beak—a native of South America—is another remarkable member of this order. The sub-family **Scopinæ**, consists of a single species, *Scopus umbretta*, but that a very remarkable one; it is known as the Hammer Head, from the curious appearance presented by its beak and long occipital crest, and constructs an enormous nest, placed in a tree or on a rocky ledge, flat-topped and clay-lined, which is said to serve for many years.

The third family, **CICONIIDÆ**, contains the Storks and Cranes. Of the former the Black Stork (*Ciconia nigra*) is an example, but the well-known White Stork (*C. alba*) is also an occasional migrant to this county; though never more than a visitant here, it is abundant and breeds in Holland; the family is for the most part confined to the Old World, one species only being found in South America. *Tantalus leucocephalus*, the so-called Indian White-headed Wood Ibis, belongs to this group. There are five species of *Tantalus* found in North and South America, also in India, where they frequent river banks and swamps, feeding on fish. *Anastomus*, of which genus there are two species inhabiting similar localities to the preceding, are said to feed chiefly on a species of freshwater mussel (*Unio*), the shells of these they break between their mandibles, which in course of time become worn away, and the singular appearance noticed in the specimen of *A. oscitans* here seen is the result. The fourth family is restricted to the Spoonbills (*Platalea*), beautiful birds with singular spatulate bills; one is a well-known European bird, and an annual visitant to this county, where it formerly bred. There are other species found in the Old and New World (five in all), one of these, the lovely

Roseate Spoonbill (*P. ajaja*), is a native of Mexico and Tropical America. The fifth and last family of this order is that of IBIDIDÆ, composed of some twenty-four species of handsome birds known as Ibises; these are found in Europe, Africa, and America. The Glossy Ibis inhabits both the Old and New World, occasionally visiting England and this county. Perhaps the best known species is the lovely Scarlet Ibis, a native of South America; but the most interesting is the Sacred Ibis (*Ibis æthiopica*), the bird held in such veneration by the ancient Egyptians, which country it visits in summer at the period of the inundation of the Nile, apparently making no long stay there, but still abundant in some parts of Africa. Several other species of Ibis will be noticed, one an Australian bird known as the Straw-necked Ibis, from the singular quill-like feathers on the front of the neck; another Australian form has a white body and black head like the Sacred Ibis; and yet another, known as the Wharty-headed Ibis, is a native of India. In

### Case XIII.

will be found the first portion of the birds of the Tenth Order, ALECTORIDES, commencing with the Cranes (GRUARIÆ), the first of these is the noble Balearic Crane (*Balearica pavonia*), a handsome crowned Crane from West Africa, near which is the North African Demoiselle Crane (*Grus virgo*). These are followed by three small birds, one of them, belonging to the genus *Turnix*, is known as *T. taigoor*, the Indian Black-breasted Hemipode, or Bustard Quail; the others are Australian species of *Hemipodius*, the Varied and the Black-backed Hemipodes. These Quail-like birds seem very much out



of place between the Cranes and the Bustards, but they may at once be distinguished from the Quails by the absence of a hind toe. There are about 23 members of this family inhabiting Southern Europe, Africa, India, China, and Australia.

We now come to the Bustards (OTIDIDÆ), one of which in times past was the glory of our own county, and has before been spoken of; the second species, *Otis tetrax*, is a wanderer to our shores. The Bustards are widely dispersed, but confined to the Eastern Hemisphere. The Houbara is found in Northern Africa, and the Macqueen's Bustard, also a ruffed bird, is a native of Western Asia, but has been known to stray to this country. There are also two Indian species of *Eupodotis*—*E. edwardsii* and *E. aurita*—in the same case. The Brazilian Cariama (*C. cristata*) is a noteworthy bird of singular appearance, it is said to be a great serpent eater, and is protected accordingly. This species brings us to the end of the case.

#### CASE XIV.

The first bird in this case is a rather abnormal species, Grebe-like both in appearance and habits, but allied to the Rails; it is known as the American Fin-foot, *Heliornis fulica*, and is the only representative of its genus. *Heliornis fulica* is found in South America, extensively distributed, but not in Patagonia. The next bird, *Podica petersi*, is nearly allied to the preceding, but inhabits Africa from Natal northward. We now pass to the Rails, of which there are a large number—our well-known Water Rail may be taken as the type; here will be seen various examples from South America, Australia, and other localities; these are followed by a number of small birds of the genus

*Crex* (Crakes, &c.), to be succeeded by the handsome Porphyrios, of which there are several species, all bearing a strong family likeness, and known from their prevailing colour as purple, green-backed, grey-headed, and other Gallinules; they are very showy birds, and some species are occasionally kept in confinement. The Australian Black-tailed Water-hen (*Tribonyx ventralis*) is an interesting bird, which leads on to the Gallinules proper, of which our Moor-hen may be taken as the type; several species are here shown, one a handsome crested bird, *G. cristata* from India, and *G. phœnicura*, a native of China. The genus *Psophia*, which is represented by *P. crepitans*, the Gold-crested Trumpeter, a singular but handsome South American bird, brings the order to a conclusion.

Order eleven, GALLIFORMES, is said to contain some 320 species; it is divided into two sub-orders, the first of which contains only one family, and a single species, the Hoatzin (*Opisthocomus cristatus*), a very remarkable bird, which has been assigned an isolated position at the head of the Gallinacious birds. It inhabits British Guiana and the Valley of the Amazon, and appears to feed on leaves and fruit.

The second sub-order, GALLINÆ, commences with the Peacocks; there are two species, placed for convenience in Case XV., although belonging here—*Pavo muticus*, inhabiting Burmah and Java, and *P. cristatus*, the common Peacock, a native of India, both birds of wonderful beauty, but so well known as to need no description. The Peacock Pheasant, *Polyplectron bicalcaratum* ornaments the bottom of the case in company with the marvellous Argus Pheasant, *Argus giganteus*, the beauty of whose ocellated plumage becomes more and more wonderful the more closely it is examined. The tail is very long, but is to a great extent hidden by the enormous extension of the wings,

these are ornamented by an immense number of eye-like spots, whence its name. These lovely birds are inhabitants, the former of the Indio-Malayan region and the latter of the Himalayas.

#### CASE XV.

is still devoted to the PHASIANIDÆ, which are natives of most parts of Asia, and display a prodigality of rich colour and variety of plumage truly astonishing, in addition to a stately bearing which seems to imply a conscious superiority. One of the most richly-coloured of the family is the Impeyan Pheasant, so called after Sir Elijah or Lady Impey, by whom the bird was first made known in this country. The Anglo-Indian name for these lovely birds is "Monal."

The curious Horned Tragopan (*Cerionis satyra*), the less conspicuous Indian Pucras (*P. microlopha*), and the White-crested Kaleege (*Euplocamus albocristatus*), all natives of the Himalayas, will attract deserved attention.

The bottom of the case is occupied by fine specimens of the Mexican Wild Turkey (*Meleagris mexicana*), which Mr. Gould shows (Proc. Zool. Soc., 1856) to be distinct from the Canadian Wild Turkey, and the origin of our domestic breed, having been introduced from the mainland of America to the West Indies, and thence in the sixteenth century through Spain to the rest of Europe and Great Britain. In corroboration of Mr. Gould's views, the late Mr. Gurney caused to be placed near the Wild Mexican bird in our Museum, a Turkey of the Cambridgeshire breed, which was reared at Earlham, and the close agreement in the plumage of the two birds is very apparent.

**Case XVI.**

continues the Pheasants proper, among them will be noticed the beautiful Chinese Pencilled Pheasant, the Japanese Pheasant, the Cheer Pheasant (*P. wallichii*), the lovely Amherst's Pheasant, the Ringed Pheasant from Amoy, the brilliantly-coloured Chinese Golden Pheasant (*Thaumalea picta*), Sœmmerring's Pheasant from Japan, and others. These are followed by the genus *Gallus*, the first of which, *G. bankiva*, the Indian Jungle-fowl, is believed to be the origin of our domestic fowl, from some breeds of which it is hardly to be distinguished; there are also specimens of *G. varius*, the Fork-tailed Jungle-fowl, a native of Java, and *G. sonnerati*, found in Southern India, the male has the shaft of the feathers curiously prolonged and flattened. Then follow the Guinea-fowls (*Numidia*); one form *N. meleagris*, is domesticated in our farm-yards; the Francolins, a numerous family; the Partridges, Red-legged Partridges, and the Quails, which fill the bottom of the case.

**Case XVII.**

The fine Himalayan Snow Partridge (*Tetraogallus himalayensis*), in this case is a conspicuous bird; there are five species, all, like their relatives the Ptarmigans (*Lagopus*), inhabitants of lofty mountain ranges. One species of Grouse, the Red Grouse (*Lagopus scoticus*), is the only bird which can be claimed as exclusively British, it is found only in the northern counties of England and in Scotland. Another member of this family is the Capercally (*Tetrao urogallus*), a noble species formerly indigenous to the North of England, Scotland, and Ireland, where, however, it became extinct; but it has been again introduced from Sweden

into Scotland with complete success, and is now firmly established. In Scandinavia it is a well-known species. The genus, *Bonasa*, is represented by a case of Ruffed Grouse (*B. umbellus*), an American species frequently seen in our markets, where it is imported in a frozen condition. The remainder of this case is occupied by a separate case of the more conspicuous birds of the sub-order, GALLINÆ, including fine specimens of the Peacock and Himalayan Pheasants; the Horned and Black-headed Tragopans; the Peacock Pheasant (*Polyplectron*), the Crowned Partridge (*Rollulus cristatus*), from Malacca; the Indian Black Francolin (*Francolinus pictus*), and other showy species.

#### Case XVIII.

The third family of the present sub-order is that of the CRACIDÆ or Curassows, natives of South and Central America, represented in the collection by the Crested Curassow (*Crax alector*), a handsome bird with a singular crest not only on the head but extending some distance down the back of the neck; these are succeeded by birds of the genus *Penelope*, also of South American origin; one however, being found in Mexico, where it is known as the "Guan," and appears to have much the same habits as the Curassows. Two species will be noticed, *P. plicata*, the Red-breasted Guan, and *P. cristata*, the Rufous-vented Guan.

There is one more family in this order which requires especial mention, namely, the Megapodes, or Mound Builders. These singular birds are remarkable for their habit of building mounds of decaying vegetable matter in which they deposit their eggs, leaving them to be hatched by the heat thus generated, thereby escaping the task of incubation, the lot of

most birds. Their young are able to take care of themselves as soon as hatched, although they do not at once quit the mound. In the collection will be seen two examples of two genera of these birds—*Telegallus lathamii*, the Wattled Telegallus, a curiously bare-necked bird, and *Megapodus tumialis*, the latter an Australian species.

Order twelve, LIMICOLIFORMES, has been estimated to contain 330 species, and is divided into two sub-orders, LIMICOLÆ or plovers, and GAVIÆ, the Terns and Gulls. The first genus is that of *Ædicnemus*, containing our Stone Curlew or Norfolk Plover, *Æ. scolopax*. Several species are contained in the collection, *Æ. grallarius*, the Southern Stone Plover from Australia, and *Æ. crepitans*, an Indian species, may be taken as examples; another fine bird referred by some to this genus, *Esacus magnirostris*, has a very wide geographical distribution; our example came from the Falkland Islands, but it is found northward as far as the Philippine Islands. *Charadrius*, of which there are some thirty species, is the genus which contains our Golden Plover; *Erythrogonys* (*Charadrius*) *rufiventer* is a handsome Australian example; there are other species of *Ægialitis* and *Hiaticula*. Some of the genus *Lobivanellus* are interesting birds; *L. (Sarcio-phorus) pectoralis*, the Australian Black-breasted Pewit, and the fine wattled Plover (*Lobivanellus lobatus*) from New South Wales, and a pretty little plover, common in the Nile Valley, known as *Pluvianus ægyptius*, the Crocodile bird; these birds, like the preceding species, are furnished with a well-developed wing-spur. The Stilt Plovers, a long-legged race (*Himantopus*), and the Avocets (*Recurvirostra*), are both peculiarly interesting to us, not only from their singular appearance, as indicated by their names, but from the fact of one species of the

former genus being an occasional visitor to this county, and that one of the latter was formerly a regular breeder in several localities in Norfolk, and is still an almost annual visitor to our shores. There are some examples of the genus *Cursorius*, one member, the Cream-coloured Courser, has been killed in this county; the same may be said of the Pratincoles, *Glareola*; *Hæmatopus*, the family of Oyster-catchers, of these there are several examples from various parts of the world; many species of Sandpipers (*Totanus*), Godwits (*Limosa*), Turnstones (*Strepsilas*), and *Machetes*, of which only one, the Ruff, is known; of this there is a beautiful white variety. This singular bird is an inhabitant of the Northern parts of Europe and Asia, and was formerly abundant in Norfolk, and many other suitable breeding sites; but if it still breeds in England, a very restricted locality in East Norfolk is its only nesting place.

Of the Sandpipers (*Tringa*) there are many examples; *Rhynchæa* is represented by the curious Australian Painted Snipe, and *Rhynchæa capensis* from the Cape of Good Hope. Then follow the Woodcocks (*Scolopax*), not a large genus, but widely distributed; one species visiting us regularly as an autumn migrant, and breeding sparingly in this county—a white example, will be seen. The last genus of this large family is that of *Gallinago*, consisting of perhaps sixteen species of Snipes, of world-wide distribution, three of these are known in this country.

The second family is that of PARRIDÆ, and is composed of the Jacanas. These curious birds are found in the warmer regions of both the Old and New World, and are remarkable for the abnormal length of their toes, enabling them to walk with safety on the floating vegetation. Some of them also possess a

shield somewhat like that of the Coot, but in an exaggerated form; and one species, which has been assigned to a separate genus (*Hydrophasianus chirurgus*), has a very long tail, and is known as the Pheasant-tailed Jacana; examples of each will be found in the collection. In the second sub-order, GAVIÆ, the Terns (STERNIDÆ) are fairly well represented. The remaining family, LARIDÆ, is very poorly represented in the collection.

Passing into the adjoining corridor on the right-hand side, we find in

#### Case XIX.

the commencement of the thirteenth order, TUBINARES, so called from the tubular form of the external nostrils. This order consists of a large number of species divided into two unequal families, the first containing the Petrels and the other the Albatrosses. The Albatrosses—restless wanderers—possessed of unsurpassed powers of flight, are found chiefly in the Southern Hemisphere, frequenting the stormy seas off the Cape of Good Hope and Cape Horn, where the giant *Diomedea exulans* may be seen following in the lonely wake of the vessel for many days in succession, with a sailing flight that has so often excited the wonder and admiration of the beholders. There are other species frequenting the North Pacific, and even wandering across into the North Atlantic, where individuals believed to be the Black-browed Albatross, *Diomedea melanophrys*, have been several times seen or procured, the last instance being in the Færoe Isles, where one was killed which is said to have associated with the Gannets there for more than thirty years. One killed by Captain Gray in Lat. 80° 11 N., long. 4, E., is now in the Peter-

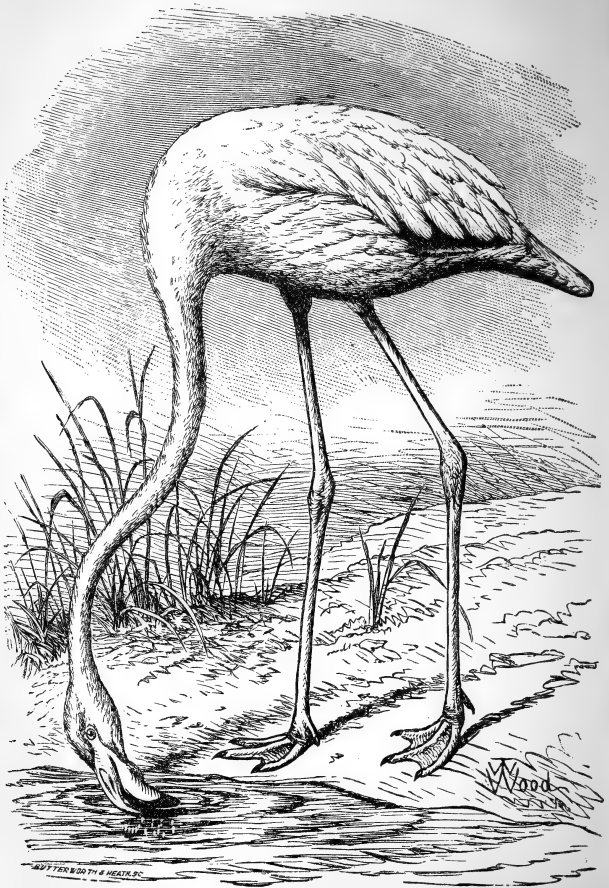


head Museum. The species just mentioned will be seen in the collection, as well as the yellow-billed Albatross, and the largest species of all, *D. exulans*.

The fourteenth order, PYGOPODIFORMES, contains the Grebes and Auks, in all perhaps seventy-five species. In the first family our well-known Great Northern and Black-throated Divers are placed; in the second (*Podicipes*) are the Grebes proper, of these our Great Crested Grebe may be taken as the type; there are thirty-one species, several of which will be noticed from different parts of the world; *P. gularis*, a Black-throated Grebe from Moreton Bay; and *P. carolinensis* from N. America, are from two widely-separated localities. Then follow the ALCIDÆ, the Great Auk being the type; *Fratercula*, represented by the Puffins; *Uria*, the Guillemots, of which a specimen of the Black Guillemot, an inhabitant of the seas of the northern division of this kingdom will be seen; and a crested species, *U. umizusume*, from Japan. The last genus, *Alle*, is restricted to the Little Auk, a winter visitor to our shores, and will be found in the British collection.

### Case XX.

begins the LAMELLIROSTRES, order fifteen, consisting of the Flamingoes, Geese, Swans, Ducks, etc. The first is the Flamingo, of which we possess but one species, *Phœnicopterus antiquorum*, found abundantly in Spain, nesting in large communities in the low-lying districts known as the "Marismas," between the river Guadalquivir and the sea. Of the true Geese there are some beautiful examples; *Sarkidiornis melanonotus*, is a singular species, the male being ornamented with a large rounded compressed caruncle along the upper mandible; these birds are



FLAMINGO.

*From Professor Newton's "Dictionary of Birds."*

found in the warmer parts of America, India, and parts of Africa. *Anseranas melanoleuca*, the semi-palmated Goose, and *A. jubata*, are both Australian species, the latter is known as the Maned Goose; the *Cereopsis* Goose, of which there are three specimens, is a very abnormal-looking form; it is an Australian species, said to be becoming very rare, being easily destroyed through its unwillingness to take to flight. *Anser cygnoides*, the Chinese Swan Goose, as also *A. hyperboreus*, the Snow Goose, are both interesting species. *Branta sandvicensis*, is peculiar to the Sandwich Islands. The last species contained in the case, is not the least remarkable; it is known as the Pigmy Goose (*Nettapus coromandelicus*). There are said to be four species of this genus known, all inhabiting the continental parts of India, Australia, and Africa, and it is stated by Mr. Blyth that the Indian species seems totally incapable of standing or walking upon the ground, invariably fluttering along like a wounded bird, and that they never alight on the ground of their own accord.

#### Case XXI.

The third family of the sub-order, ANSERES, is that of CYGNIDÆ, comprising eleven species of Swans; the best known is our domesticated *Cygnus olor*, in addition to this two, or perhaps three others, are winter visitors to our shores; these have already been referred to when describing the collection of British Birds. Here we have some good examples of the Australian Black Swan and Cygnet. The fourth and fifth families, ANATIDÆ and FULIGULIDÆ, consist of a large number of true ducks, our common wild Duck may be taken as the type. They are cosmopolitan, some spending their time

for the most part on fresh water, and restricted to vegetable diet; others frequenting the sea, where they subsist on marine organisms obtained by diving. They may be roughly divided into surface-feeding and diving Ducks. The first genus, *Dendrocygna*, inhabits Asia, Africa, the West Indies, South America, and Australia; they are fresh-water species, generally known as "Whistling" or Tree Ducks. One beautiful example is Eyton's Tree Duck, an Australian species; another striking bird is the White-faced or Widow-cap Duck, *D. viduata*, a native of South America. *Tadorna*, the type of which is our Sheld Duck, a very handsome species, is represented by *T. radjah* from Cape York; and *Casarca*, the Ruddy Sheld Ducks, by a New Zealand species, *C. variegata*. There are also Carolina Ducks, very lovely birds, and Teals.

#### Case XXII.

The Diving Ducks are represented by specimens of Steller's Duck, a beautiful Arctic species, a Norfolk-killed example of which is in the collection of British Birds; the Australian White-eyed Duck, *Nyroca australis*, *Eunetta falcata*, and *E. formosa*, the Baikal Teal; and *Cairina moschata*, the Muscovy Duck, a South American species domesticated here. *Biziura lobata*, a singular Australian species, ornamented with a large caruncle hanging from the lower mandible like the wattle of a cock; and *Erismatura leucocephala*, the Spiney-tailed Duck, a southern species of a genus which ranges from Eastern Europe to the West Indies, Chili, the Auckland Islands, S. Africa, and Australia. A small case will be noticed containing two singular birds, *Nettapus coromandelicus*, the Pigmy Goose, already mentioned on p. 95, and the Freckled Duck (*Tadorna naevosa*).

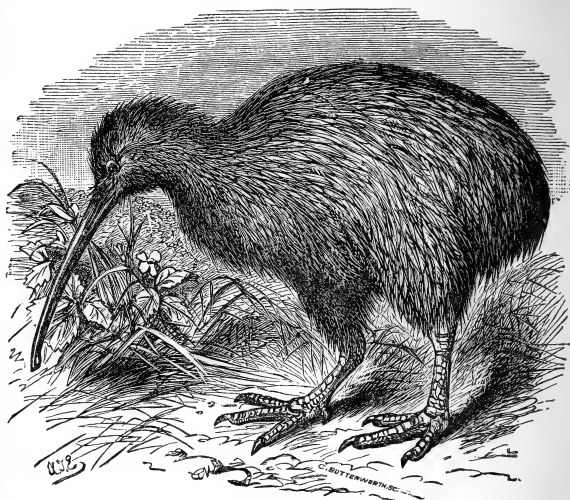
Order sixteen, IMPENNES, consists of a single family of three genera, inhabiting the Southern Ocean, and known as Penguins. They are incapable of flight, fearless of man, and gregarious in their breeding haunts, all circumstances favouring the extinction of the race, which the brutal treatment they almost invariably meet with from those who visit their "rookeries" must soon accomplish. The King Penguin (*Aptenodytes longirostris*), in the separate case was brought alive to this country, and was the second living individual that reached England; it was captured in the Falkland Islands. A second species, *Eudyptila minor*, from Goose Island, Australia, and a crested Penguin (*Eudyptes nigriventris*), will also be noticed.

#### Cases XXIII and XXIV.,

which conclude the series devoted to the general collection of birds, contain some very interesting species. Order seventeen, CRYPTURI, comprises a single family, TINAMIDÆ, consisting of a number of birds of a very aberrant form, inhabiting the South American region, and in appearance not very unlike partridges, from these, however, their anatomical peculiarities show them to be far removed, their relationship being at least as near to the Struthious birds. Two species will be seen, one of the genus *Tinamus*, the other a *Nothura*.

We now come to the second sub-class, **RATITÆ**, which contains one order only, the eighteenth and last, STRUTHIONES, flightless birds, generally very swift of foot. The first family is that of the APTERYX, another example of the marvellous fauna of the Australian region. These singular birds are found only in New Zealand; two species are said to inhabit the North Island and two the South; they are nocturnal

in their habits, feeding chiefly on earth-worms. For these they probe the soft soil with their long bill, near the point of which the nostrils are situated; although an extremely sensitive organ, it is probable that they are assisted in this search for food, not only by the delicacy of touch possessed by the point of the



THE NORTHERN KIWI. (*Apteryx mantelli*.)

*From Professor Newton's "Dictionary of Birds."*

mandible, but also by the sense of smell, as when searching for food they utter a sniffing sound, as though testing their food by smelling as well as by touch. In the daytime they remain hidden under the ferns and other vegetation with which the soil in the localities frequented by them is profusely covered. We have two

species, *Apteryx mantelli* from the Northern, and *A. australis* from the Southern Island of New Zealand.

The DROMÆIDÆ are comprised in two genera, *Casuaris* and *Dromæus*; of the former there are nine species, and of the latter two. The Cassowaries are all inhabitants of the Papuan sub-region, that is New Guinea and the adjacent Islands, one species being found in North Australia; all are ornamented with a large horny casque, the bare skin of the neck conspicuously coloured bright blue and red, the body covered with coarse black fanlike feathers, and the wings replaced by a group of black quill-like spines; they wander in the forests feeding chiefly on fruits. We possess but one species, *Casuaris galeatus*, from the Island of Ceram. Of the Emeu, *Dromæus novæ-hollandiæ*, we have three specimens. There are two species both inhabiting Australia. Next to the Ostrich this is the largest of existing birds. They are most interesting birds, and capable of domestication, breeding freely in confinement, but like so many other species are disappearing as the country becomes settled. Of the genus *Struthio*, containing only one species—the giant Ostrich—we can exhibit only a newly-hatched example in the down; but of the next genus *Rhex*, we have a fine example. These birds lack the beauty of plumage possessed by the Ostrich, but nevertheless are clothed with feathers which possess a considerable market value, their consequent total extinction is therefore only a question of time; it is with extreme regret that we have again to express the oft-repeated lament, that the ruthless demands of a passing fashion should entail the destruction of some of the most beautiful and interesting inhabitants of the globe.

**The Picture Gallery.**

On leaving the Ornithological Collections, the visitor immediately enters the Picture Gallery. This fine room is one of the three larger-sized galleries in the range of buildings adjoining the Keep of the Castle. It extends in length from north to south, and is entered near its north end through swing doors in its east wall. At present it contains the greater part of the works of art belonging to the Museum. On its east and west walls are the oil paintings; those on the east side being chiefly pictures by members of, what is now known as, the "Norwich School" of painters. At the south end of the room are the sketches in black and white and the etchings. On the north wall are the water colours. These drawings, both on the north and south walls, are also mostly by Norwich artists. It will be well to bear in mind this arrangement, as it will be found a useful guide to the position of any particular work, for at present the pictures are not numbered. As, however, the names of the painters are placed on the frames of the pictures, we shall be able, by means of their position, to point out those of the greatest interest. In doing so, we shall not take them in the order in which they would be passed in a walk round the room, but shall single out the works of particular artists in whatever part of the gallery they may be found; and thus, we hope, give the visitor as much information as possible in the way that will most readily help him.

With these preliminary observations we pass to the pictures exhibited.

"THORPE WATER FROLIC—AFTERNOON," by JOSEPH STANNARD (born 1797, died 1830). In the centre of the east wall is the most important work here exhibited of the Norwich School.



Immediately to the right of this picture is a smaller one by the same painter, "A FRESH BREEZE," which, though rather cold in tone of colour, is in drawing, composition, and painting excellent. At the north end of the Gallery is a capital PENCIL DRAWING OF VESSELS, also by the same artist, whose subjects were generally of the river or the sea. On the west wall near the south end of the room will be found a very pleasing PORTRAIT OF JOSEPH STANNARD, by G. CLINT, R.A., lately bequeathed to the Museum by Miss E. Stannard, the artist's daughter.

It will be interesting to turn to the work of MRS. JOSEPH STANNARD (b. 1802, d. 1885), who was her whole life long a painter. As Miss Coppin, her works had won for her several gold medals from the Society for Promoting Arts and Commerce. These medals are now in the Museum. Two of her pictures, "DEAD GAME" and "FLOWERS," will be seen on the east wall to the right and left of the central group, and her portrait, by MR. J. C. BREWER, on the left of the door by which the visitor entered the Gallery.

Two small pictures by other members of this family, "RIVER SCENE WITH MILL," by ALFRED STANNARD (b. 1806, d. 1889), and "A ROAD SCENE," by his son, A. G. STANNARD (b. 1828, d. 1885), are also to be found to the right of the central group; while on the right and left of it are "FRUIT" and "FLOWERS," by MISS E. H. STANNARD—a daughter of Alfred Stannard—who now continues the work and sustains the fame of this artistic Norwich family. Alfred and Joseph Stannard were brothers.

JOHN CROME (b. 1768, d. 1821) is represented at present by one small picture only, "A VIEW ON THE WENSUM." It will be found on the line, to the right of the central picture.

JOHN BERNEY CROME (b. 1794, d. 1842) is also

represented by one picture, but one that more fully shows the power of the painter. It is a "VIEW NEAR BURY ST. EDMUND'S," and it hangs on the line, to the right of the centre and by the side of the last-mentioned picture, the work of his father.

A portrait in water colour of JOHN BERNEY CROME, by H. B. LOVE, also a Norwich man (b. 1800, d. 1838), will be found at the side of the doorway by which the visitor entered the Picture Gallery.

JOHN SELL COTMAN (b. 1782, d. 1842) is more fully represented. On the line, and to the left of the central picture, is an oil painting by him in an early stage of its progress, "A VIEW ON THE NORWICH RIVER," described in a memorandum by the artist as "from my father's house at Thorpe." Two water-colour drawings, hanging on the north wall near the west door, "A CASTLE IN NORMANDY" and "YARMOUTH TOWER," will give an idea of the breadth and simplicity so characteristic of Cotman, and will show how much depends on composition in his pictures and how little, comparatively, on the amount of detail and hand-work. A small chalk drawing on the south wall, to the right of the doorway, "OLD TOWER AT CARROW" (A COMPOSITION), will also illustrate his treatment of landscape, while a portrait of PROFESSOR BARLOW, on the left of the doorway, will show how wide was the painter's range in subject.

GEORGE VINCENT (b. 1796, d. *circa* 1836) was a Norwich artist of great ability. His fine picture of Greenwich Hospital, it may be remembered, was a surprise to the public at the International Exhibition of 1862. He is represented here at present by one small picture only, "ROAD SCENE AND COTTAGE,"—east wall, third picture from south end.

Above the Vincent is a small sea view, "A PIER HEAD WITH BOATS," exceedingly well drawn and

painted, by MILES E. COTMAN (b. 1810, d. 1858); and on the north wall are some water colours, in which intense blue is skilfully managed, by J. J. COTMAN (b. 1814, d. 1878). Both these painters were sons of John Sell Cotman.

JAMES STARK (b. 1794, d. 1859), one of the most widely known of the artists of our local school—no doubt greatly owing to his published work on the Rivers of Norfolk—is also represented by one picture only, and one that can hardly be said to do justice to him. In his earlier days his manner of painting more nearly resembled the Dutch style of the true Norwich School. "WINDSOR CASTLE," the picture here exhibited, is in his later manner. It hangs near the door by which the visitor enters the gallery.

THE REV. E. T. DANIELL (b. 1804, d. 1842) was an accomplished Norfolk painter and etcher. He is represented by two oil paintings, "A VIEW OF ST. MALO" and "THE LAKE OF GENEVA," and by some sketches on the north wall. The sketches are four in number. The centre one, "HAVRE," is a very delicate drawing of buildings. Two of the others, views of "TEIGNMOUTH," on the left, and "THE ENTRANCE OF THE DART," on the right, are sketched on grey paper. The fourth, called "A WATERFALL IN SWITZERLAND," is slight, and rather suggestive of Black Gang Chine.

Near the door on the east wall is "THE NAVE OF NORWICH CATHEDRAL," by DAVID HODGSON (b. 1798, d. 1864). Above the Cathedral is a smaller work, "SANDLIN'S FERRY," also by DAVID HODGSON.

"MARY KEPT ALL THESE THINGS AND PONDERED THEM IN HER HEART," by ALICE HAVERS (east wall). This striking picture, though not a work of the Norwich School, is by a Norfolk lady; Miss Havers having been a member of the Havers' family, formerly of Thelveton Hall, near Diss.

The name of Ladbroke is a well-known one in Norwich. A portrait in water colour of ROBERT LADBROOKE (b. 1770, d. 1842), by WAGEMAN, will be found near the west door of the gallery. There is nothing by Robert Ladbroke himself exhibited, but the "HEAD OF A BLOODHOUND," after Landseer, by his son, HENRY LADBROOKE, of Lynn (b. 1800, d. 1869), hangs at the other end of the west wall; and "POLLARD OAKS," a characteristic work by J. B. LADBROOKE (b. 1803, d. 1879), another son, whose life was chiefly spent in Norwich, is on the opposite wall near the south end of the room. These painters, it may be mentioned, were related to Crome.

In the centre of the group of water colours on the north wall is "WHITLINGHAM REACH," a beautiful example of the work of JOHN THIRTLE (b. 1777, d. 1839). Another fine water colour by Thirtle, "DILHAM STAITHE," hangs a little to the left of the central picture. In this view a rainbow is introduced. "NORWICH FROM MOUSEHOLD" and "A VIEW ON THE RIVER WENSUM," as it flows by King Street, are also by Thirtle; one hanging above and one to the right of the centre.

"GATEWAY AND CATTLE," by HENRY NINHAM (b. 1793, d. 1874), hangs by the doorway on the east wall.

"EFFECT AFTER RAIN," by HENRY BRIGHT (b. 1810, d. 1873), a small picture on the line, at the south end of the east wall.

"SUNSHINE AND SHADE, IVY BRIDGE, SOUTH DEVON," by JOHN MIDDLETON (b. 1827, d. 1856). Middleton was first a pupil of J. B. Ladbroke and afterwards of Bright.

"IFFLEY MILL, OXFORD," by ALFRED PRIEST (b. 1810, d. 1850). Near the south end of the east wall is this effective picture, the work of Alfred Priest, who began life as a sailor and ended it as an artist. There

is one other work by him on the same wall called "OWLEGARCHY"—a group of owls—which will attract from its subject.

"MILL AT REEDHAM," by T. LOUND, a well-known Norwich amateur (b. 1802, d. 1861). A very pleasing little picture on the right of the door on the east wall. There is a water colour, "ELY CATHEDRAL," by the same artist. In choice of subject and manner of treatment he was more nearly allied to David Cox than to the Norwich School.

On the west wall will be noticed a portrait of R. R. BOARDMAN, by ANTHONY SANDYS (b. 1806, d. 1883). MISS EMMA SANDYS, his daughter, is also represented by her "STUDY OF A HEAD," one of her last works, and unfinished. The picture hangs on the east wall above the little river scene by Crome.

Among the water colours will be found "ST. LEONARD'S PRIORY," by ROBERT DIXON (b. 1780, d. 1815); a native of Norwich, who was well-known as a scene painter.

So much space has been given to the pictures more strictly belonging to the Norwich School, that the works of other artists must be lightly touched on. C. J. WATSON and J. W. WALKER, though no longer living in the city, may be claimed as Norwich men. Mr. Watson is represented by "DIRTY WEATHER NEAR THE MOUTH OF THE YARE," painted in 1873, which hangs above Thorpe Water Frolic; by two smaller oil paintings, "OLD COTTAGES, TROWSE HYTHE" (painted in 1870), and the "SHADES OF EVENING, BARTON BROAD"; by a water colour, "WHITEFRIAR'S BRIDGE, NORWICH," a very sunny picture, giving quite a Venetian character to the scene; and by several of his effective etchings of "LONDON THOROUGHFARES." Mr. Walker by his water colours, "A CUMBERLAND STREAM" and "THE

RUSH CUTTER'S HARVEST," a characteristic Norfolk subject. Mrs. Walker by her capital water-colour drawing of "DEAD LINNETS."

With the bare mention of the highly-finished "AUTUMN FRUIT," by the late MR. R. P. BURCHAM; of MR. H. G. BARWELL'S "EXTERIOR OF THE STRANGERS' HALL, NORWICH"; of a study of "HIPPOPOTAMI," in the Zoological Gardens, by SAMUEL J. CARTER, of Swaffham (who died in 1892); of one of the late CHARLES KEENE'S original drawings for *Punch*; of the etching, "RAIN AND WIND," by SIR J. C. ROBINSON; and of the etching of "PARDENICK, LAND'S END, CORNWALL," by EDWIN EDWARDS, a Suffolk artist (b. 1823, d. 1879), we must turn to the west side of the gallery, where is arranged a small collection of works not limited to any particular time or school of painters.

In the centre of the west wall is a group of pictures of marine subjects by JOY, FRANCA, SARTORIUS, and POCKOCK, surmounted by a fine portrait of the donor, CAPT. GEORGE WILLIAM MANBY, by J. P. DAVIS. The pictures were painted to illustrate the use of Capt. Manby's life-saving rocket apparatus.

Near the north end of the west wall is a portrait of Capt. G. W. Manby's father, CAPT. M. P. MANBY (artist unknown).

The west wall is rich in portraits. On the left of the central group of pictures is that of the late MR. JOHN HENRY GURNEY, by SIR FRANCIS GRANT, P.R.A. An inscription beneath the portrait records the services rendered by Mr. Gurney to the Norfolk and Norwich Museum, and to commemorate which the picture was presented to that Institution. On the right of the centre is a portrait of the late MR. JOHN GUNN, painted by CAPT. (now LIEUT.-COL.) H. H. ROBERTS, formerly of Norwich; also presented to the

Museum in recognition of the services of Mr. Gunn. Here also is the THE REV. W. KIRBY, a former President of the Museum, and a distinguished entomologist.

Towards the north end of the west wall will be found a well-painted head of LORD NELSON (artist unknown). It does not give the idea of Nelson with which we are familiar, but it was painted in 1781, when he was Captain of the *Albemarle*, and was but twenty-three years of age. It is hardly likely that there are other portraits of him at that age with which to compare it.

To the left of the central group is a good portrait of ALDERMAN JOHN BROWNE, of Norwich, (*ob.* 1834), by JOSEPH CLOVER, also of this city. Further to the left is the late MR. JOHN GURNEY, to whom we are chiefly indebted for the transfer of the Museum from the building in St. Andrew's Street to the Castle. This picture is a copy by CECIL SCHOTT, of the original by G. F. WATTS, R.A.

Near the door on the west wall is ROBERT FORBY, who was born at Stoke Ferry in Norfolk, in 1759, and died in 1825. He was the author of a well-known Vocabulary of East Anglia. The name of the painter is not given. Near it is an interesting HEAD, date 1577, also by a painter whose name has not come down to us. At the top of the picture, on the left, is the name—"Mr. Bitt," and a coat of arms. On the right-hand side is the inscription, "*Ætatis suæ, 32.*"

Another and a smaller head hangs close by, EDMUND GILLINGWATER, of Lowestoft, author of a History of that town. He died in 1813, aged 77.

Two larger portraits, one of BISHOP SPARROW, the other of his wife, although rather hard in style, are interesting. The name of the painter is not known. Anthony Sparrow was a native of Depden in Suffolk.

He was translated from the see of Exeter to that of Norwich in 1676, and was Bishop of Norwich from that time until his death in 1685.

Three pictures of the Dutch School will be found on this wall—"THE VIGILANT MISTRESS," by N. MAES; a bright and pleasing "VIEW ON THE SCHELDT," by KOEKKOEK; and "THE COMING SQUALL," by BACKHUYZEN. Here also will be found a "STUDY OF A HEAD," by JOHN BARWELL (b. 1798, d. 1876), a well-known Norwich amateur, who, in conjunction with Crome and Cotman, established a Drawing Academy in the city.

A view of "NORWICH CATHEDRAL," by B. SEWELL, though painted in oil colour is, strictly, not a picture, but an architectural elevation.

A small bronze statuette of "NARCISSUS," a copy of a celebrated antique, occupies a pedestal at the north-west corner of the room.

The Picture Gallery is about to be enriched with a portrait of SIR PETER EADE, M.D., by MR. STANHOPE FORBES, A.R.A., painted to commemorate Sir Peter's services in connection with the Castle Museum during his second Mayoralty, in 1894, when he received and entertained their Royal Highnesses the Duke and Duchess of York, on their coming to open the Castle Museum. Sir Peter Eade, in his first Mayoralty, in 1884, conducted the negotiations for the purchase of the Castle from the Government by the City of Norwich. By his energy and munificence he contributed greatly to the successful carrying out of the Castle Museum Scheme in 1894, so that the opening of the Castle Museum took place in that year.



## **The General Collection of Shells.**

Before proceeding further it may be well to inspect the collection of shells, British and Foreign, which the exigencies of space render it imperative should be somewhat dispersed. The Lombe-Taylor collection is to be found in the Foreign Bird Room; this must be taken to supplement the more important collection in the Reptile Room, in connection with which it will be described, and with which it will probably eventually be incorporated; whereas the collection of British Land, Freshwater, and Marine Shells will be found in the Corridors as shown on the plan.

The great beauty, both of form and colour of many of the exotic shells, renders them so attractive that the fact is too often overlooked that they are merely the habitations in which dwelt the organisms they were designed to protect, and in contemplation of the casket the jewel is in danger of being forgotten. Thus it became fashionable to collect shells as mere objects of beauty, quite irrespective of their former inhabitants, the very name which was assigned to their study, "Conchology" (a discourse about shells), indicating its incompleteness; as well might one attempt to form a just idea of the life history and racial peculiarities of a people by the study of their deserted dwellings only.

### **Case I.**

The recent classification of the Mollusca is based upon the organ of locomotion known as the "foot," and is divided into four primary classes, the first of which is C E P H A L O P O D A, in which the organs of progression are arranged round the head. Order I., DIBRANCHIATA, contains the Octopus, Cuttle-

fish, Squid, Spirula, and Paper Nautilus, and is so named from its members possessing two gills. The shuttle-shaped mass is the internal shell or "bone" of the Cuttle-fish (*Sepia officinalis*), a "common object of the sea shore;" it is the most substantial form of "shell" possessed by this order; in the Octopus, there is no such support; and in the Calamaries it is represented by a translucent horny substance which, from its fancied resemblance in shape to the quill and plume of a goose feather, is called the "pen." The curious coiled, many chambered shells resembling "Post-horns" belong to a cuttle-fish of the genus *Spirula*; these were long a puzzle to "Conchologists," for although very abundant on the shores of New Zealand, and even occasionally borne by the Gulf Stream to Tenby, S. Wales, on our own coast, the animal of which they formed a part was unknown in its perfect state till 1878, when Professor Owen had the opportunity of dissecting a complete specimen and dispelled the mystery.

The delicately beautiful "Argonaut" or Paper Nautilus, is the only species of the order which has an external shell, and yet although formed by it, is not attached to the animal which inhabits it, and is, moreover, peculiar to the female sex; it is now known that the female inhabits the shell which she builds for herself, and uses chiefly as a receptacle for the safe keeping of her eggs.

Another very remarkable Mollusc, with which also the name of Professor Owen will always be associated, is the Pearly Nautilus (*Nautilus pompilius*), an inhabitant of the tropical seas of China, India, and the Persian Gulf. This species is the only existing member of the once numerous order TETRA-BRANCHIATA, or four-gilled Molluscs, of which more than 1,600 fossil species are known belonging

to several families, with one of which, that of the Ammonites, we are very familiar. Of all these numerous forms that of *Nautilus* is the only one remaining; this fact alone should invest the creature with surpassing interest, for in it we behold an animal of very ancient descent, left as it were to form a key to the structure and habits of its brethren of the Carboniferous and Jurassic periods.

Class II. consists of the GASTEROPODA, containing a very large number of orders and species, of which our common Garden Snail may be taken as a familiar example. The visitor will be sure to be attracted by the well-known form of *Strombus gigas*, the Indian fountain shell, immense quantities of which are annually imported from the Bahamas for the manufacture of cameos; it is said to be a favourite article of food with the natives of Barbadoes, and to be used for the manufacture of various articles useful and ornamental wherever found. *Triton variegatum* is also a fine shell. This is the Conch shell, used as a trumpet by the natives of the southern seas, and a specimen will be seen in the collection perforated in the side for that purpose. Some singular shells of the genus *Murex* are remarkable for their development of spines; they are all carnivorous, and furnished with a long proboscis, at the end of which is a spiny tongue, with which they bore through the shells of other species and devour their soft parts. From certain species of *Murex* found in the Mediterranean the ancients obtained their purple dye. The genus *Terebra*, known from the long pointed form of the shell as the "Augur Shell," will attract attention by their singular long drawn-out whorls, as also *Purpura*, a mollusc of wide distribution, one species of which is common on the British coast at low water, and is very destructive to mussel-beds; it produces a dull

crimson dye, which may be obtained by pressing on the operculum. The "Helmet Shells" (*Cassis*) are well-known ornamental shells, and are much used in the manufacture of cameos. *C. tessellata* is a very pretty example. There are also some beautiful examples of the "Harp Shells" (*Harpa*); and of the Olives, known as "Rice Shell," a good series of which, as well as of the Cones, will be found in the Taylor collection; of these latter there are many from which the epidermis has not been removed, as well as others polished and showing the most lovely and intricate markings. The *Volutes* are also finely-marked shells, one known as *V. musica*, is so called from its having lines similar to the musical staff upon its shell.

The Cowries (CYPRÆA) are well-known ornaments, conspicuous for the beauty of their markings and for their high polish, the shell being always covered by the two lobes of the mantle; they inhabit nearly all the warm seas of the world, but are most abundant in the Pacific. *C. moneta*, the Money Cowry, is used as a medium of exchange; in British India about 4,000 are said to pass for a shilling.

The "Weaver's Shuttle" is the trivial name of *Ovulum volva* (and some of the vernacular names of shells appear to be very trivial); it has the aperture of the shell drawn out into a long canal at each end. It is a West Indian species and feeds on the coral animal. The "Wentletrap," or as it is sometimes called, the Ladder Shell, belongs to the large genus *Scalaria*, most of which are tropical species; *S. pretiosa* is a typical and beautiful example, pure white and lustrous; the animal is said to exude a purple fluid. A singular form, known as *Siliquaria*, in which the tube is at first spiral and afterwards irregular, has the additional interest of having been brought from

Australia by Capt. Owen Stanley, to whom the various collections in the museum are so much indebted. *Solarium perspectivum* is known as the "Staircase Shell" from the fancied resemblance of its whorls seen in the umbilicus, to a spiral staircase; it is a handsome shell, the species are mostly natives of the tropical seas.

The next two families, TURBINIDÆ and TROCHIDÆ, are very extensive ones; the shells of both are beautifully pearly within, and highly ornamented exteriorly. There are many species in the collection, some quite in the rough as when captured, others cleaned, and others still, from which the outer coating of shell has been removed, showing the pearly structure below. The operculum of an Indio-Pacific species of Top Shell (*Turbo petholatus*) is frequently mounted as a brooch or scarf-pin.

The Ormers or Ear Shells (*Haliotis*), so called from their ear-shaped shells, are found attached to rocks like limpets in most of the tropical and temperate regions of the world except South America. One species is found in the Channel Islands. *Haliotis iris*, a New Zealand species, is among the most beautiful. Some lovely examples are in the Taylor collection. The Violet Snails (*Ianthina*) are extremely pretty, deep violet at the base shading off to white in the spiral. They frequent the open Atlantic, sometimes drifting to our shores, and are remarkable for constructing a float or raft attached to the foot, on the under surface of which the eggs of the female are secured; they thus float in a helpless condition on the surface of the sea, and in rough weather are quite at the mercy of the waves.

We now come to the Limpets, some of which (*Fissurellidæ*), perforated at the apex, are known as the "Keyhole" Limpets. They spend their time attached

to rocks in the Tidal Zone. Various descriptions, named from the form of the shell, are known as "Duck Bill," "Bonnet," "Cup-and-Saucer," and "Sandal" Limpets. One species, *Patella vulgata*, is common on our coast.

## Case II.

The *Chitons* are singular armoured Sea-Slugs. The plates, eight in number, being fixed transversely on the back of the animal like the bands of the Armadillo; they move on a broad foot or base, and have the power to roll themselves up like a Hedgehog.

The Land and Freshwater Air-breathing Mollusca (*Pulmonata*), next in order, the first family of which, *HELICIDÆ*, contains many individuals with which we are familiar, such as the common Garden Snail. It sometimes, though rarely happens, that the whorls of these shells are reversed; such specimens will be noticed in the collections. As many of these shells will be referred to when we come to the British section, it will only be necessary here to mention some few of the more remarkable examples.

The extensive genus, *Bulimus*, contains some very fine sub-tropical snails; the shell of *B. ovatus*, a South American species, being as much as six inches long; but even this is exceeded by the great African *ACHATINÆ*, or Agate shells, one of which, *A. bicarinata*, is the largest of all known land shells, and attains a length of eight inches; examples of this fine species, with the thick calcareous shelled egg, will be seen. *A. zebra* is also a fine species, very beautifully marked. A fine collection of *Helices*, many of them from the Philippine Islands, will be found in the Taylor collection.

The Slugs, although not attractive in appearance, are very interesting animals. They possess only a slight internal shell, which assumes the form of a thin plate protecting the breathing organs.

There are other very remarkable species, which it would be desirable to mention did space permit, such as the CYCLOSTOMIDÆ, which have a spiral shelly operculum ; the Bubble Shells (*Bulla*) ; and the curious Limpet-like Chinese-umbrella shells (*Umbrella*). The numerous section, NUDIBRANCHIATA, or Sea-Slugs, objects of great beauty, are without shells, and therefore not represented in the collection. They are found under stones and sea-weeds in tide pools on every shore. We must pass on to the genus, *Hyalea*, one of the PTEROPODA, the doubtful position of which has already been mentioned. *Hyalea tricuspidata*, the only species in the collection, is a curious globular shell with a terminal spur, on either side of which is a smaller spur, each of the latter being supplemented by a long tooth-like projection ; the animal protrudes two large wing-like fins from its apex, which correspond with the foot of the Gasteropod. These creatures occasionally swarm in the open seas, propelling themselves with their wing-like appendages. Nor can we do more than simply refer to the BRACHIOPODA (now separated from the Mollusca by modern Biologists), a very ancient family, fossil-forms of which are distributed through all the rocks of marine origin, but are most abundant in the Devonian age. Some 1,000 fossil species are recognised, but the recent representatives, so far as they are known, do not exceed seventy. From their peculiar form they are known as "Lamp Shells."

The third class, or main division of the Mollusca, is that of SCAPHOPODA, consisting of only one family, DENTALIDÆ, with a simple genus, *Dentalium*,

or "Tooth Shell," so called from the resemblance of the shell to the tusk of an elephant. There are some thirty species known, which are inhabitants of the temperate and warmer seas, being almost cosmopolitan in their distribution.

The fourth class, or main division of the Mollusca, is known as PELECYPODA, from the form of the "foot," which is more or less that of a hatchet. Its members are possessed of no true head or eyes; do not wander in search of their food, although some kinds possess limited powers of locomotion by means of the foot, or are able to swim, propelled through the water by the opening and closing of their valves. The body is enclosed in two valves or shells hinged at the posterior margin; they are all aquatic, most of them marine, and many species burrow into the sand or mud; others attach themselves to rocks, and some even perforate stones, wood, or other substances, in which they take up their abode.

One of the best known bivalves is the Oyster, which needs no description. A remarkable form is *Malleus vulgaris*, the "Hammer Shell," so called from the peculiar shape the shell assumes with age. The Pearl Oyster is another interesting member of this family, some fine specimens of which will be noticed; it is known as *Meleagrina margaritifera*. The most important fisheries are in N. West Australia and Ceylon. A curious oyster, of the genus *Placuna*, is known as the "Window Shell," from the pearly translucence of its substance. The "Fan Mussel," or "Pinna," is another remarkable form; it is somewhat wedge-shaped, and attains a length of two feet. The Pinna is found embedded in the sand the pointed end downwards, where it moors itself by a long silky byssus. The "silk" of the byssus of the great Pinna is mixed with that of the silkworm and woven into gloves, etc., by the Italians.



The Pectens, of which family our well-known Scallop is a member, are a numerous and widely-distributed race, all of them very handsome shells, some of great beauty and delicacy. A fine series will be found in the Taylor collection.

The family MYTILIDÆ, or Mussels, is an important one, and is known to us chiefly by the genus *Mytilus*, enormous quantities of which are used for food or bait. The Horse-Mussels (*Modiola*) are very large; one fine species will be noticed, which is a native of California. Unlike the true Mussels, the Horse-Mussels have a habit of burrowing; *Lithodomus lithophagus* makes its abode in the solid stone, and it is by a species of *Lithodomus* that the pillars of the Temple of Serapis are bored. The family ARCADÆ contains some fine very solid-looking shells. *Trigonia lamarcki*, an Australian species, will attract attention in consequence of the beautiful pearly lining to its shells. The valves of the family UNIONIDÆ are also remarkable for their lustrous interiors; the Chinese avail themselves of the power possessed by these animals of thickening the interior of the shell by the deposit of coatings of nacre, and introduce foreign substances into the shells of the genus *Hyria*, which soon become covered with the pearly material; some little images of Buddha will be noticed in one of the shells thus coated. A beautiful series of Unios and Anodons will be found in the Taylor collection.

*Tridacna gigas*, the Giant Clam, found in the Indian Ocean, is a well-known ornamental shell, and exceeds all others in magnitude; the single valve under the case, although not quite perfect, measures thirty-six inches in length, and weighs 76 lbs. Our common Cockle is an illustration of the next family, CARDIADÆ. There are several varieties of *C. edule*, which will be seen in the British collection. Some of the tropical

species have very ornamental and beautifully-coloured shells. Passing by many handsome shells, Cyprina, Venus, and Cytherea—one species of the latter, *C. maculata*, marked in squares like a chess-board—we must notice in passing the curious boring Mollusc, *Petricola lithophaga*, some specimens of which will be observed *in situ* in the hardened clay wherein they had taken up their abode. A little further on are the TELLINIDÆ, a numerous family of very delicate and beautiful shells, some examples of which may be found in the littoral zone of almost every sea in the world. The Taylor collection has a beautiful series. The next remarkable form is the *Solen*, or Razor Shell, a common object on our sandy shores. They inhabit the low water-line of temperate and tropical seas, burrowing into the sand in a vertical position, and are said to be excellent eating; about twenty-five species are known. The Myas, consisting of several genera, have similar habits to those of the Solens, but do not possess such remarkable shells, and much the same may be said of the Lantern-Shells of the family ANATINIDÆ.

A very remarkable shell is that known as the Watering-pot Shell, *Aspergillum vaginiferum*, a long white calcareous tube, closed at the lower end and very unlike a bivalve in appearance; but a closer examination will show the minute valves embedded in the lower portion of the shelly tube, which has grown as the animal increased in age, leaving the embryo valves cemented in its walls. One more family remains, that of PHOLADIDÆ, containing a number of boring animals, which make their home in various substances, wood, clay, chalk, or even sandstone. Some species are found in abundance in the clay and chalk on our own coast, but we can show nothing like the giant Californian *Pholas bisulcata*,

which will be seen with other smaller species in the collection. The Ship Worm, *Teredo navalis*, belongs to this destructive family, and there are some fourteen species in all.

### British Land, Freshwater, and Marine Shells, &c.

The collection of British Shells has been arranged in accordance with the *British Conchology* of Gwyn Jeffreys, which will be found to differ considerably from that we have been following; it may be that some day we shall arrive at something like a uniform system, but until that time the student must do his best under the circumstances and console himself with the thought that it is not only in this particular branch of Natural Science that the inconvenience exists. This want of an uniform system of classification, and the multiplication of synonyms are the two greatest stumbling-blocks in the way of the beginner.

Mr. Gwyn Jeffreys commences Class I. with the Bivalves of the family SPHÆRIIDÆ, the first of these is the typical genus *Sphærium*, Scopoli (*Cyclas*), the members of which are found in ponds and streams, burrowing in the mud or floating among the aquatic vegetation. *S. corneum* is a common species, and forms a very interesting addition to an aquarium where it readily breeds. The members of the genus *Pisidium* (pea-shaped) are much smaller than the preceding, but are found in the same localities and their habits are similar. *P. amnicum* may be taken as a type. The UNIONIDÆ, or fresh-water mussels, also inhabit lakes and running water. They are a well-known family, some of them, as *U. pictorum*—the

shells of which were formerly used to hold artists' colours—are beautifully tinted in the interior; *U. margaritifera*, the pearl mussel, often five inches long, secretes a thick coating of "Mother of Pearl" on the inside of its valves, as well as sometimes contains detached pearls of some value, and is perhaps the most interesting. The Swan Mussel, *Anodonta cygnea*, is the largest of the fresh-water mussels; it reaches a length of six or eight inches in suitable localities, thriving best where the water is nearly stagnant and food therefore abundant. The next and last family of the freshwater Bivalves is that of DREISSENIDÆ, containing the single genus *Dreissena*, known as the Freshwater or Zebra Mussel, *D. polymorpha*. The claim of this species to be indigenous to Great Britain is by some considered doubtful, its first-known habitat being the rivers of Russia and the Caspian Sea. This belief is strengthened by its having been first noticed in this country in 1824, in the Commercial Docks on the Thames, where it proved to be abundant; but it was found nine years after in widely distant localities. Some of the specimens in the collection are from the Thames; others possess additional interest from having been found in Whittlesea Mere, a freshwater lake long since drained. In common with the Sea Mussels it has the habit of mooring itself by a "byssus," an example of which will be seen—it is also equally gregarious.

Class II., GASTEROPODA, is devoted to the "Univalves," the first family contains the single genus *Neritina*, and only one British species, *N. fluviatilis*, a small globular-banded shell, with a shelly operculum, found in all parts of the kingdom, from the Orkneys to Cornwall; then follow two fine species of *Paludina* and two minute BYTHINIÆ, and two others belonging to the genus *Hydrobia*, equally

small but very abundant. The genus *Planorbis* is a peculiar one, the shells of its members are coiled so as to form a flat or even concave surface like an Ammonite, and their inhabitants seem too small for their habitation. When irritated they emit a purple-coloured fluid, and if left dry, as not unfrequently happens (they often inhabit shallow water), they close the mouth of the shell with an epiphragm, and retiring into its recesses wait for better times. There are several species, and *P. corneus*, well known in this neighbourhood, may be regarded as typical of the genus. The pretty delicate shells of *Physa fontinalis* should be noticed. The species is common and very interesting. It may frequently be seen floating at the surface of the water, foot upwards, and is said to spin a filament to lower itself to the bottom should no leaf or stalk be near. *Limnea* is another pond genus, containing some beautifully-formed shells, notably *L. pilustris* and *L. stagnalis*, the latter the largest of the family, whilst *L. auricularia* is remarkable for its rounded form and expanded ear-shaped aperture. They are all inhabitants of marshes and ponds. *Ancylus fluviatilis*, known as the fresh-water Limpet, is a curious form widely distributed, dwelling in brooks and shallow waters, attaching itself to stones and shells. Though undoubtedly air-breathing, it is still believed to be capable of extracting the air in some degree from the water for the purpose of respiration, this, from the length of time it remains submerged, must be necessary. There is a second species known as *A. lacustris*, which attaches itself to the under sides of the leaves of water plants.

## Case II.

We now arrive at the Terrestrial Univalves. The

first family is that of LIMACIDÆ, or the Slugs, sufficiently well-known objects, and one of the best known, at least in the flesh, is the Great Black Slug (*Arion ater*), although, in consequence of the shell with which these creatures are generally provided, being in this species reduced to merely a number of loose calcareous grains, covered by the hinder part of the shield, it is not sufficiently substantial for its remains to find a place in this collection. It is, nevertheless, a very interesting animal, and possessed of peculiarities which do not exist in the other genera. There is a second species, *A. hortensis*, much smaller, of an orange colour, and possessing a slightly more compact shell. Both species are common in woods and damp places, hiding under stones and logs, and coming abroad after rain or in the dewy evening, feeding on almost any decaying substance, animal or vegetable.

Of the genus *Limax*, containing the chief pests of our gardens and cultivated lands, may be mentioned *L. flavus*, a great yellow slug, whose slimy tracks may so frequently be seen in cellars and damp buildings, where it prowls at night in search of kitchen refuse; *L. maximus*, a giant, five or six inches long, intruding itself almost everywhere; and *L. agrestis*, our common garden pest. All these possess a fairly-developed shell, to be found situated under the shield. One species, *L. arborum*, possesses the power of letting itself down to the ground by forming a thread from its own slime, up which it can again climb should it desire to do so. This power is possessed, in a less degree, by some of the other species of this genus.

*Testacella haliotideia*, is a remarkable species, the only member of the genus found in this country; and

a doubtful native; preserved examples are in the collection, and a small external shell will be noticed near the tail which serves to protect its vital organs. This species appears to be a connecting link between the Slugs and the Snails, with both of which it has affinities. It is found in gardens, and its natural food is earth worms.

We have now arrived at the great family of *HELICIDÆ*, a very extensive one, containing the true Snails, and for convenience, broken up into eleven genera. The first genus is that of *Succinea*, of the three species of which examples will be seen; the largest is *S. putris*, the Amber Snail, the large body of this species and the oval shape of the shell, seemingly too small for its body, shows its affinity to the Slugs. *Vitrina pellucida* is a pretty little species, from its colour known as the Green Glassy Snail. The genus *Zonites* contains a number of small shells, some of them, when disturbed, give out an odour like garlic.

The genus *Helix*, which follows, is the typical one of the family, and contains many interesting species. The two first, *H. lamellata* and *aculeata*, are very small, this is atoned for by the next species, the giant *H. pomatia*, the Apple Snail, which tradition says, but apparently with no confirmatory evidence, was introduced into this country by the Romans. Here the esculent properties of this fine species are neglected; but on some parts of the continent it is much prized as an article of diet. Of *H. aspersa*, the Common Snail, and *H. nemoralis*, the Garden Snail, many varieties are shown; both species are very numerous. Other interesting species are *H. cantiana*, *rufescens*, *carthusiana*, *hispida*, *pygmæa*, and others. Three species of *Bulimus* are small but pretty elongated shells, and *Pupa*, so named from the resemblance of the various species to a chrysalis, is a genus of small

shells, the inhabitants of which are gregarious, living on walls, under stones, and at the roots of plants. The genus *Vertigo*, Whorl Snails, consists, according to Gwyn Jeffreys, of nine species of minute molluscs, much resembling in form and habits the preceding genus; and the same may be said of the tiny *Balia perversa*; also of the species of *Clausilia*, *Cochlicopa*, *Achatina*, *Carychium*, *Cyclostoma* (found on nettles growing on the chalk at Whitlingham), and *Achme*, which complete the contents of the case.

### Case III.—Marine Shells.

Class BRACHIOPODA. When describing the shells in the Foreign Collection, we have already had occasion (p. 115) to speak of the members of this remarkable Order. According to Mr. Gwyn Jeffreys, it comprises two families, containing three genera and six species.

We now arrive at the true marine Bivalves, Mr. Gwyn Jeffreys' Class CONCHIFERA, Order LAMELLIBRANCHIATA, the first family of which contains one genus and two British species, *Anomia ephippium* and *A. patelliformis*, both of these are in the collection, dredged in Loch Fyne. From their appearance, these shells are known as "silver shells"; the animal inhabits the littoral zone from low water to eighty or ninety fathoms, and is generally dispersed on our shores, anchoring itself to rocks and shells by a plug, passing through an orifice in the lower valve.

The next family, that of OSTREIDÆ, is monopolised by the most delicious of Molluscs, our common (?) Oyster, *Ostrea edulis*. This species is too well known to need description, and good specimens are in the collection, some of them showing the beautiful pearly deposit which covers the inside of the



valves sometimes to a considerable thickness. Some specimens of detached pearls are also exhibited. Nearly related to the Oysters are the Pectens or Scollops, Mr. Jeffreys enumerates nine species, most of them, with many varieties, are in the collection. Some are very elegant and delicately coloured. *Pecten maximus*, the largest of the genus, is found on the Norfolk coast. When the Scallop is young it swims very freely and is extremely active. The second genus of this family, namely *Lima*, resembles the Pectens in some respects, but the shell is always white. Some of them dwell in an artificial burrow; others spin a byssus. Mr. Jeffreys enumerates five species. Examples will be found in the collection. The next genus, *Avicula*, contains only one species, known as *A. hirundo*, from the fancied resemblance of its curiously-shaped shell to a swallow on the wing. It attaches itself by a byssus to objects at the bottom of the sea, and in the British seas has only been found off Plymouth. The inner surface of the shells is lined with pearly substance, and is beautifully iridescent, like its near relatives the "Pearl" and "Hammer" Oysters. Of the giant Pinna and its beautiful silken byssus, we have spoken before (p. 126) and now pass to the MYTILIDÆ, the type of which is *Mytilus edulis*, our well-known Mussel, which abounds in some localities on the Norfolk coast, and constitutes a valuable fishery, both for human consumption and as bait. There are several species and varieties, one of these, *M. barbatus*, is noticeable for the shaggy beard with which its shell is adorned. Of the family ARCADÆ, or Arks, we have several representatives in each genus.

#### Case I.

Begin with the important family CARDIADÆ, consist-

ing of the shells known as Cockles, with some of which we are very familiar. They are a well-defined family, inhabiting soft and sandy ground, widely distributed in almost all the seas of the world, occurring from low-water mark to considerable depths. Only members of the typical genus *Cardium* are found in British waters; but there are several other genera, both tropical and arctic. Some of the species have very handsome strongly-marked shells; but perhaps the most interesting to us is *Cardium edule*, the highly-gregarious species, found so abundantly on our own coast, and which furnishes not only an agreeable esculent, but also helps materially in the livelihood of very many persons, not only on our own, but on all the sandy shores of the kingdom.

The family CYPRINIDÆ contains four genera and six species. They are all inhabitants of sandy and muddy tracts of the sea bed, and with the exception of the first, *Isocardia*, the "Heart Cockle," so called from the globular and cordate form of its very handsome shell, all bear a strong family likeness. *Cyprina islandica* is a handsome species, oval in outline; in *Astarte* the shell is more compressed, and *Circe* has a thick compressed orbicular shell, with diverging striæ. The shells of the next family VENERIDÆ, which is a numerous one, much resemble those of the preceding in form, and are noted for the beauty of their colours and markings. *V. linctæ* and *chione* may be pointed out. Many species of the family TELLINIDÆ follow, some of them extremely pretty and delicate shells. Of the family MACTRIDÆ, *Macra solida* and *glauca* are fine species, as also *Lutraria elliptica*, and the various species of *Scrobicularia*.

The next family brings us to a very different form of shell, although the animals still have the same

habit of burrowing in the sandy shore, but a few which prefer a muddy bottom, are found at greater depth. These are the SOLENIDÆ; the members of the typical genus, *Solen*, are known, from their form, as Razor Shells, there are several species of very unequal size; *S. siliqua* is very common on some parts of the coast of Norfolk. We must pass on to the family of MYIDÆ, known as "Gapers," from the valves not closing at the ends. Some of the species are used for food, especially *Mya arenaria*, which is common on the Norfolk coast; they all burrow in the sand within the littoral zone. Other genera are *Panopæa* and *Saxicava*, in which latter genus we first find a tendency to excavate a home in solid rock. *Saxicava rugosa* inhabits the lowest verge of spring tides, and makes its home in limestone, chalk, or even sandstone. The next genus, *Venerupis*, has the same habit, and specimens of *V. irus* will be seen embedded in the rock. *Gastrochæna dubia*, of which specimens from Weymouth will be seen, is said to penetrate not only limestone but even granite.

We now come to the family PHOLADIDÆ, the members of which inhabit a thin, white brittle shell, rasp-like on the exterior, and open at both ends. They excavate holes in rock and sand, maintaining a vertical position; here they permanently remain, extruding their siphons to secure passing food. Several species will be noticed, some *in situ*. *Teredo* is the dreaded "worm," so destructive to any wooden structure exposed to the action of the sea. The shell is globose, and the burrow, which may be a foot, or perhaps two feet long, is lined with shell. These animals, like the boring *Pholas*, however thickly they may inhabit the same piece of timber, never cross the burrows of their own kind, but by some means always avoid them. There are four British species,

but *T. navalis* is that which causes the greatest destruction in this country. The curious little *Dentalium* has already been described, p. 116.

### Case II.

We now return to the GASTEROPODA, the fresh-water section of which we have already described ; the first order which presents itself is that of CYCLOBRANCHIATA, in which the gills are arranged in two separate rows, and are covered by the mantle ; this order contains the single family CHITONIDÆ, known as Chitons. They form a very singular group somewhat resembling the limpet in structure, but elongated in form, and covered by a buckler composed of eight plates fixed transversely on the back of the animal. They frequent the line of low water, hiding under stones and seaweed ; Gwyn Jeffreys enumerates ten British species, two or three of which are found on our own coast. Following the Chitons are the PATELLIDÆ, or Limpets, comprising several genera, some of which are well-known to us. They are largely collected on the rocky coasts for bait, and have even been used by the poorer classes for food in hard seasons. These in turn are succeeded by the FISSURELLIDÆ, distinguished by their cap-shaped shells, having either a slit in front or a hole in the centre, hence known as "Keyhole" Limpets. There are several species, some of which are very pretty shells. *Capulus hungaricus* is an elegant shell limpet-like, but the apex turned to the rear, somewhat resembling a widely-opened cornucopia. Their habits are much the same as those of the Limpets. *Calyptræa* is a somewhat similar form of shell. The next family is that of HALIOTIDÆ, the only member of which inhabiting our seas is *Haliotis tuberculata*, the Ormer, or Ear-shell, found abundantly in

the Channel Islands ; we have already had occasion to refer to this genus when speaking of the beautiful exotic examples to be found in the collection of Foreign shells (p. 113), with which this, although a very pretty shell, will not compare. The animal lives on rocks and stones at the margin of low water.

*Scissurella*, a minute genus of Northern habitat is not represented in the collection, and we pass to the family of TROCHIDÆ, which is a very extensive one universally distributed, and extending from low water to a depth of upwards of 100 fathoms. The shells are for the most part nearly flat on the base, pyramidal in shape, pearly inside, with a horny operculum, and many of them, as will be seen, very prettily coloured. The first genus, *Cyclostrema*, which was established by Capt. Marryat, a Norfolk man, is represented in our collection by *C. nitens* and *C. serpuloides* ; its three members are extremely minute, and none of them are known to occur on the Norfolk coast ; of the genus *Trochus* there is a good representative collection. *Phasianella pulla*, the Pheasant Shell, the only member of the family TURBINIDÆ, found in our seas, belongs to an essentially southern genus, and is represented by some very pretty specimens from the Channel Islands. Of the family LITTORINIDÆ we have a fair collection, including of course our common "periwinkle," very abundant on some parts of the coast, and the collecting of which for sale forms a considerable industry ; these are succeeded by some very minute shells belonging to the genus *Rissoa*. Passing over a number of other species equally small, we come to the genus *Turritella*, or "Screws," the shell of which is a slender elongated pyramid ; this is followed by *Truncatella*, having the appearance of a truncated form of the preceding species ; and some very pretty little shells of the genera *Scalaria*

and *Odostomia*, the latter, as arranged by Mr. Jeffreys, a very extensive genus of exceedingly minute shells.

Of *Ianthina rotundata*, the beautiful violet-coloured raft-building shell, an oceanic species occasionally cast ashore on the southern portions of England and Ireland, we have already spoken at p. 113, and glancing at the pretty spiral shells of *Eulima*, *Natica*, and *Trichotropis*, we notice the dilated lip and wing-like processes of the handsome genus *Aporrhais*, known as "Spout Shells," and arrive at the family BUCCINIDÆ, the first genus of which is *Purpura*, *P. lapillus*, being our well-known Dog Whelk, the deadly enemy of the mussel and other bivalves, from which after perforating the valve with its spiny tongue, it extracts the soft parts; it also yields a coloured fluid on pressing the operculum, at first white, but afterwards becoming blue, which was formerly used by the Irish as a dye.

There are several other genera of strongly-marked shells which we cannot stop to particularise, as *Iriton*, *Murex*, *Fusus*, *Nassa*, etc., till we come to the pretty little *Marginella lævis*, the still prettier *Cypræa europea*, the only British cowry, followed by *Ovula patula*, a near relative.

The family BULLIDÆ contains several genera of singular shells. *Cylichna cylindracea* is a cylinder of nearly the same breadth throughout, a prettily-marked *Acteon*, *Bulla hydatus*, one of the Bubble shells, *Scaphander lignarius*, and *Philene aperta*, a species in which the shell is wholly internal and concealed under the mantle, brings us to the end of the family and at the same time to that of the case.

Passing through the Mammalian Room we come to the corridor devoted to Osteology, on the left-hand side of which are four small table cases; in

## Case I.

of which will be found the remainder of the Mollusca.

The extensive Fifth Order, NUDIBRANCHIATA, known as the naked-gilled Molluscs, or Sea Slugs, being shell-less except in a very early stage of their existence, are not represented here; there are many strange and beautiful forms of these creatures both varied and graceful.

Owing to the extremely artificial arrangement adopted by Mr. Gwyn Jeffreys, namely, land, fresh-water, and marine shells, there are four families of air-breathing Mollusca (Pulmonobranchiata), inhabiting estuaries where the water is neither fresh nor salt, which have been left out in the cold. The first family (Oncidiadæ) is not represented in our collection, but of the second family (Assimineidæ) we have both species, *A. grayana*, found only on the banks of the Thames, between Greenwich and Gravesend, and *A. littorina*, which makes its home inside the Chesil Bank at Weymouth, and in a few other places. Woodward places both these in the family LITORINIDÆ. In the third family (Carychiadæ), we have also both species of the only genus *Melampus*, *M. bidentatus* and *M. myosotus*; they are spindle-shaped shells, the former frequenting ground between tidemarks, and the latter mud-flats and salt-marshes. These Woodward places in the family AURICULIDÆ. Of the fourth family (Otinidæ) we have no representative.

Of the class PTEROPODA, the small wing-footed Molluscs, inhabiting the open sea, we have already spoken at p. 115, as also of the CEPHALOPODA, the Squids and Cuttle-fish at p. 110; but the "pen," or internal skeleton of *Loligo vulgaris*, the common Cuttle-fish, as well as the hard internal shell of *Sepia officinalis*, with specimens of the parrot-shaped beak,

also of the peculiar grape-shaped ova, will be seen in this case.

A number of British *Cirripedia*, formerly classed by old authors as "multivalve molluscs," but now rightly regarded as crustaceans, are also here exhibited. Of these will be noticed *Lepas anatifera*, the common Goose Barnacle, which like *Pollicipes* spends the sedentary period of its existence fixed to floating substances and ships' bottoms in the tropical and temperate seas; to these the curious species known as *Conchoderma aurita* is often found attached, as well as to the fine Acorn Barnacle, *Coronula diadema*, which is only found parasitic on the skin of certain species of Whales inhabiting the temperate seas of the North Atlantic; these and several other species of *Balanus* will be seen in the case before us. In

#### Case II.

are a number of Crustaceans, many species of Crabs, Lobsters, etc., and specimens of *Serpula*.

#### Case III.

contains a collection of Foreign Crustacea; among the Crabs will be noticed the giant *Cancer gigas* from Tasmania, and the curious King Crabs (*Limulus*), natives of tropical seas.

#### Case IV.

is devoted to a collection of Star fishes, of which there are some remarkable specimens; and the three small wall cases contain (1) a number of exotic sponges, among which are beautiful specimens of *Euplectella aspergillum*, and the glass-rope sponge *Hyalonema mirabilis*; (2) and (3) a number of fine Corals, etc., from the tropical seas.



*Euplectella aspergillum*—known as “Venus’s Flower-Basket”—the silicious skeleton of a species of sponge, is, owing to the exquisitely beautiful and fairy-like tracery of its frame work, one of the most lovely objects in nature. The spicules are so arranged as to weave together a thin-walled vase of delicate lattice-work with square meshes; this in life is covered with the living substance of the sponge, and is either attached to rocks at the bottom of the deep sea, or anchored in the mud by a tuft of lengthened silicious spicules. The top is covered by a lace-work of the same material, and when found, the interior invariably holds a number of crustaceans, whether voluntary or involuntary prisoners it is not known. This beautiful sponge was first obtained off Zebu, one of the Philippines. *Hya’onema mirabilis* is another wonderful form of sponge found in the Japanese seas. It is known as the “Glass-rope” sponge, from the arrangement of its anchoring spicules, which are twisted together into a spiral wisp or rope, sometimes reaching a length of eighteen inches; the sponge is at the upper end supported by a stalk, overgrown with an incrustation of *Palythoa*, and the bare glassy portion is embedded in the mud of the ocean bed. Specimens are usually seen, with the twisted rope-like portion turned upwards, as prepared by the Japanese.

After leaving the Picture Gallery, we enter the corridor devoted to the FISHES.

Those in the wall cases are all British, and almost entirely of local origin. They are not sufficiently numerous to treat systematically, and I shall only call attention to the most remarkable. In

### Case I.

will be noticed a fine specimen of the MAIGRE

(*Sciæna aquila*), which was taken off Sheringham in 1841. The two large BREAMS, respectively 7 lbs. 5 ozs. and 8 lbs. 6 ozs. in weight, were captured in the River Wensum, above Hellesdon Mills. There are also specimens of the SPANISH and POMERANIAN BREAMS, and of RAY'S BREAM, from Yarmouth; a fine Suffolk TUNNY (*Orcynus thynnus*); various GURNARDS; three and fifteen-spined STICKLEBACKS; and a very remarkable fish, known as the DEAL-FISH (*Trachypterus arcticus*), taken in Holkham Bay, in October, 1879; also the head of a large SWORD-FISH (*Xhipius gladius*), which was caught at Mundesley in October, 1861.

#### Case II.

contains, amongst other specimens, an OPAH, or KING-FISH (*Lampris luna*), a very beautifully-coloured fish when in a fresh condition; it was taken at Eccles in July, 1844; a FISHING FROG (*Lophius piscatorius*), and a WOLF-FISH (*Anarrhichas lupus*) from Yarmouth; also various species of WRASSE, some of them finely-coloured fish when living, followed by CHUBS, TENCH, CARP—both common and crucian—and DACE, the silvery beauty of which has quite departed.

#### Case III.

In this case is a monster PIKE, which weighed 24 lbs. when it was taken from the River Bure; a SALMON, now a very rare fish in the rivers of Norfolk, captured on the flooded meadows at Lakenham, in 1872; also ALICE SHAD, CODLING, EEL-POUT, or BURBOT (*Lota vulgaris*), a freshwater relative of the Cod-fish, and ROCKLINGS, both three and five-bearded.

## Case IV.

The various members of the Cod family, GADIDÆ, are continued in this case. There are the COAL-FISH, HADDOCK, HAKE, WHITING, etc., which are succeeded by the PLEURONECTIDÆ, comprising the PLAICE, HALIBUT, TURBOT, etc.; also a specimen of MULLER'S TOPKNOT, taken at Yarmouth in 1890, and the LONG ROUGH DAB, from the same place, both rare fishes on our coast. A fine FLOUNDER, taken in the fresh water at Sandling's Ferry, will also be noticed.

## Cases V. and VI.

One of the most conspicuous objects in this case is a fine specimen of the SUN-FISH (*Orthogoriscus mola*), taken at Overstrand in 1843, one of the most singularly-formed of any of the fishes; a STURGEON; DOG-FISHES of various species; the head of a HAMMER-HEADED SHARK, which was killed at Yarmouth in 1829; a fine PORBEAGLE; an ANGEL-FISH (*Rhina squatina*) and young; some large freshwater EELS and LAMPREYS; and specimens of the various PIPE-FISHES, small marine fishes of singular appearance belonging to the Order LOPHOBANCHII; they are bad swimmers, and generally maintain a vertical position by means of a very rapid vibration of the dorsal fin. Another peculiarity is that the males of most species receive the eggs of the female in a sac at the base of the tail, or attached to the abdomen. We have the BROAD-NOSED PIPE-FISH (*Siphonostoma typhle*), the GREAT PIPE-FISH (*Syngnathus acus*), the OCEAN or SNAKE PIPE-FISH (*Nerophis æquoreus*), and the still more curious SEA-HORSE (*Hippocampus antiquorum*).

In the three small wall cases in this corridor are

some interesting specimens, chiefly foreign. No. 1 contains Flying-fish and Hammer-headed Sharks, both from St. Helena, with young of the latter; a number of Australian fishes; the Porcupine-fish (*Diodon hystrix*) and *Tetrodon patoca* from the East Indies, both of which latter possess the power of inflating their bodies till they assume an almost globular shape. In No. 2 will be found a number of fish in spirits, amongst which should be noticed *Cottus grænländicus*, from Yarmouth, and near it *C. scorpius*; also a very rare fish, taken on the Norfolk coast, *Scorpena dactyloptera* (Delaroche), known to the American Ichthyologists as the Rose Perch. And in No. 3 are some spirit specimens of OCTOPUS, LOLIGO, etc.

Under Case 2 is a specimen of the BONY PIKE, *Lepidosteus osseus*, belonging to the GANOIDEI, an Order of fishes which, though very abundant in the palæozoic and mesozoic age, is very scantily represented in the recent fauna, and evidently verging towards total extinction. Dr. Günther, writing of the genus *Lepidosteus*, to which this fish belongs, states that "fishes of this genus existed already in Tertiary time; their remains have been found in Europe as well as North America. In our period they are limited to the temperate parts of North America, Central America, and Cuba. Three species can be distinguished, which attain to a length of about six feet. They feed on other fishes, and their general resemblance to a Pike has given them the vernacular names of Gar-pike, or Bony-pike (Günther's *Study of Fishes*, p. 367).

From the Fish Corridor we enter a room devoted first to a small collection of REPTILIA, next to which are British Mammals, the remainder of the cases being occupied by a general collection of Mammals.

## Case I.

commences with the OPHIDIA. Among others will be noticed specimens of the INDIAN BOA with skeleton of the same, the PUFF ADDER (*Vipera arietans*), a deadly African species from Natal, near to which is our harmless RINGED SNAKE (*Natrix torquata*). There are many Ophidians in spirits, which it has not been possible to name and arrange, and, in fact, the whole of this collection is at present in a very chaotic condition, which must account for our so early making the acquaintance of the AMPHIBIA, as represented by the BULL FROG, the COMMON FROG (*Rana temporaria*), and the EDIBLE FROG (*R. esculenta*), the latter acclimatised in this county. The COMMON TOAD is sufficiently well-known, and the NATTERJACK (*Bufo calamita*), found in many parts of this county, where it is more local than rare, and generally distinguished as the Creeping Toad. In

## Case II.

we make the acquaintance of the Order LACERTILIA, or Lizards, some of which present a very striking appearance. The EGYPTIAN MONITOR (*Varanus niloticus*) is not, as its name implies, confined to the neighbourhood of the River Nile, but is also found on the banks of the great Rivers of the West and in South Africa. It is said to reach six feet in length, one-half of which is made up of the tail. A species of *Anolis* will be noticed for the expansion of the skin under the throat in the form of a pouch. There is also a small Lizard with a remarkably long and slender tail, known as the Tachydrome (*Tachydromus sexlineatus*), a native of China, Borneo, and Sumatra. *Scincus pachyurus* is a singular creature, with a remarkably abrupt caudal

termination, and another species of *Scincus* (*S. whitii*), obtained in New Holland, is next to it. The three-horned *Chamælon oweni*, possessing a long horn over each eye and another at the end of the muzzle, is a sufficiently singular animal; but it is cast completely into the shade by the THORN-DEVIL, or HORRIBLE MOLOCH (*Moloch horridus*), one of the most repulsive creatures living, a member of the extraordinary fauna of Australia. Another species, the HORNED LIZARD of California, is almost as hideous a creature. And the chapter of horrors may be closed by the WINGED DRAGON, or Flying Lizard (*Draco volans*), all of which remarkable forms are members of the same Order, represented in this country by our pretty little VIVIPAROUS LIZARD (*Lacerta vivipara*).

### Case III.

The upper portion of this case is occupied by some Indian MONITORS of the genus *Calotes*, and the remainder contains some very good specimens of the genus *Crocodilus*, from various localities, and a skull only of the *Gavial*, a species mostly frequenting the River Ganges.

### Case IV.

is devoted to the members of the Order TESTUDINATA, the Tortoises and Turtles. The most interesting specimen is one of the Great Galapagos Tortoises, now becoming so extremely rare. This fine Tortoise was presented alive to the Museum in 1842. There are, or were, several species on the various islands of the Galapagos Group. There are also young specimens of the Angulated Tortoise (*Testudo angulata*), a South African species; *Testudo elegans*, the Indian-Starred Tortoise; *T. graeca*, the Common Greek

Tortoise, and others. Of the Turtles, *Chelone imbri-cata*, the Hawk's-billed Turtle, an East Indian species, may be mentioned; and a monster Green Turtle (*Chelone viridis*) from the West Indies, which, when living, weighed  $497\frac{1}{2}$  lbs. This is, however, by no means the limit of their growth, for they are said to reach a length of seven feet, and to weigh 800 to 900 lbs.

The next four cases are devoted to a small collection of BRITISH MAMMALS. They are not at present arranged systematically, and we will notice them in the order in which they occur.

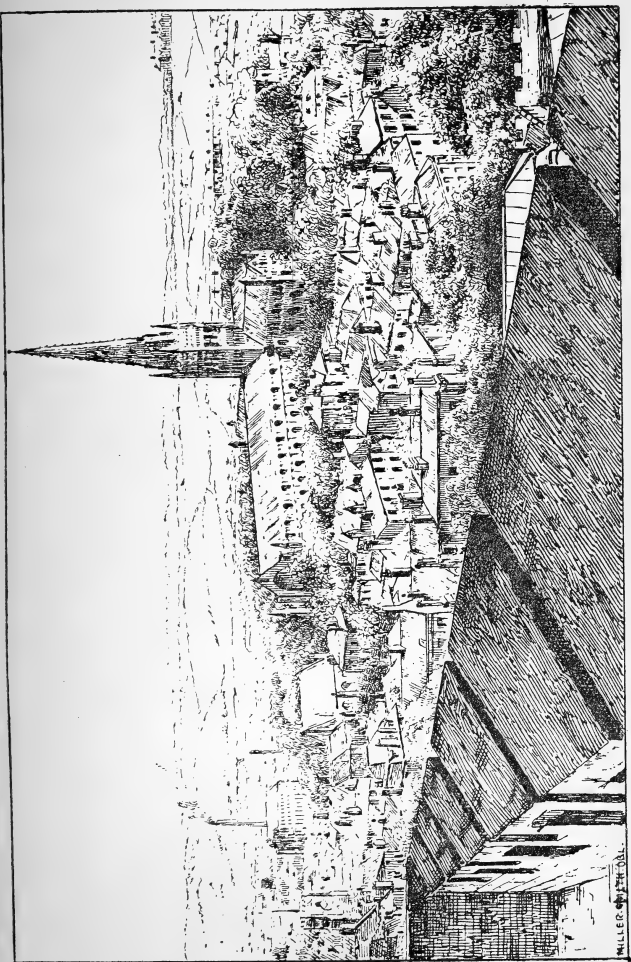
#### Cases V. and VI.

contain representatives of the RODENTS, amongst which are the HARE (*Lepus timidus*) and RABBITS (*L. cuniculus*), both wild and tame, with several varieties. The GUINEA-PIG is also awarded a position in this case, for although not even indigenous to Europe, it has been so long domesticated, that its origin is uncertain. The probability, however, seems to be in favour of its Peruvian descent from a species known as Cutler's Cavy (*Cavia cutleri*). The too well-known BROWN RAT is even more fully acclimatised than the Guinea-pig, but is equally of foreign origin. Here it is believed to have exterminated the Rat which it found in possession, the so-called OLD ENGLISH BLACK RAT (*Mus rattus*), itself an Eastern adventurer, but of a much earlier date. *Mus rattus* lingers in a few isolated localities in Great Britain, and the stock is probably sometimes replenished by importations from the Continent. The domestic MOUSE (*M. musculus*) needs no mention, and with it are the pretty long-tailed FIELD MOUSE and the elegant little HARVEST Mouse (*M. minutus*). The Voles are represented by

the so-called WATER RAT, a vegetable feeder of most engaging habits ; the common FIELD VOLE, a terrible pest when too numerous ; and the RED FIELD VOLE, or Bank Vole, a much rarer species. These are followed by the well-known SQUIRREL, and its miniature the DORMOUSE, a rare animal in Norfolk. In the centre of the room is a very interesting object which ought to be referred to before we quit the Rodents, for although the work of an animal long since extinct in Britain, the BEAVER was formerly indigenous to these Isles. Some years ago a number of Canadian Beavers were liberated in Sotterley Park, Suffolk, and made themselves quite at home, felling trees to construct a dam after their manner, and the tree stool in the case referred to is their work. They proved very destructive, and eventually strayed away and were killed, which, I believe, was not regarded as an unmixed evil by their introducers. Passing to the CHIROPTEA, several species of BAT will be noticed ; but there is by no means a complete collection of British Bats. The HEDGEHOG, by far the largest of our British INSECTIVORA, is well known ; so also is the MOLE, although it is most frequently seen gibbeted on a thorn as left by the mole-catcher. There is a singular white race of Moles, anything but uncommon in some parts of this county. The remaining Insectivores are the SHREWS, of which there are three, the Oared Shrew not now being considered a good species.

Of the CARNIVORA, the BADGER is a very interesting example. Formerly, doubtless, it was very numerous, of which there are frequent indications in local names derived from this species ; but in the present day haunts suitable to its retired mode of life are much less common, and the "Brock" suffers accordingly. The Fox stands upon an altogether different footing.





THE CATHEDRAL FROM THE BATTLEMENTS OF THE KEEP.

from the Badger, which is no longer a sporting animal ; but even this Huntsman's favourite leads a precarious existence. In

#### Case VII.

will be seen specimens of the OTTER, an animal still common in the fastnesses of the Broads, where perhaps it is as numerous as in any part of England. The COMMON SEAL (*Phoca vitulina*), which is met with all round the British shore, is frequently found on the Norfolk coast, whence that exhibited here was obtained. There is also in this case a much finer species of Seal, known as the GREY SEAL. It formerly bred on the Farne Islands, but I fear has ceased to do so, and is now only met with in an irregular manner south of Scotland, where it still holds its own on some of the remote islands. The young animal here exhibited is one of several which have been met with on the Norfolk coast. A few skulls of Seals will also be noticed, one of them belonging to a small Seal, *Phoca hispida*, an Arctic species, the only known British example of which was procured on our coast. In

#### Case VIII.

will be seen other examples of the Badger and Fox, with skeletons of each, as well as WILD CATS (*Felis catus*), and POLECATS (*Mustela putorius*), the former long extinct and the latter now very scarce in this county. There are also examples of the STOAT (*Mustela erminea*), both in its summer coat, and also in the white dress it often assumes in winter ; in either state it may be recognised by its black-tipped tail. In Norfolk this species is known as the "lobster," probably a corruption of the word "leapster," in

allusion to its mode of progression by leaps and bounds. The WEASEL (*M. vulgaris*) is much smaller than the Stoat, and the female, which is even smaller than the male, is called the "Mouse-hunter." All these are blood-thirsty little creatures, but of incalculable value in keeping down the rats and mice which form their favourite food. The MARTEN (*Martes foina*), formerly common enough, is now a rare British animal, only surviving in woodland districts where the gamekeeper is not so much abroad as in this part of England.

We must hope in time to receive specimens of the British RUMINANTIA, which are conspicuously absent, as also of the CETACEA, especially as the seas and estuaries of the Norfolk coast have proved exceptionally rich in species of the latter order.

### Cases IX. and X.

The general collection of the animals forming the great class MAMMALIA, or those which give suck to their young, is so exceedingly fragmentary, that many very important sections are here quite unrepresented. Without going too much into detail, it may be said that the whole class can be divided primarily into three well-marked divisions, having no intermediate or transitional forms;\* these have been designated by Professor Huxley (1) *Prototheria*, (2) *Metatheria*, and (3) *Eutheria*, corresponding to the old divisions of *Ornithodelphia*, *Didelphia*, and *Monodelphia*. The first of these divisions, the sub-class **PROTO-THERIA**, comprises one order only, MONOTREMATA, consisting of two families, (1) ORNITHORHYN-

\* The arrangement is that adopted in Flower and Lydekker's *Introduction to the Study of Mammals, Living and Extinct*.

CHIDÆ, the Duck-bill, and (2) ECHIDNIDÆ, the Spiny Ant-eater. These two families—between which there are no known extinct intermediate forms, and which although agreeing in many important characters, differ very considerably in others—it is still thought desirable by the authorities just named to retain in one order.

The sub-class, **METATHERIA**, too, contains but one order, that of MARSUPIALIA, the pouched animals, Opossums, Wombats, Kangaroos, etc.

The third sub-class, **EUTHERIA, PLACENTALIA**, or **MONODELPHIA**, is a very comprehensive one, consisting of nine orders and many sub-orders and families. The orders are as follows, (1) EDENTATA, the Sloths, Ant-eaters, etc.; (2) SIRENIA, Manatees and Dugong; (3) CETACEA, Whales; (4) UNGULATA, hoofed animals; (5) RODENTIA, gnawing animals; (6) CARNIVORA, flesh-eating animals; (7) INSECTIVORA, Shrews, Moles, Hedgehogs; (8) CHIROPTERA, Bats, Flying Foxes; and (9) PRIMATES, Lemurs, Monkeys, Man.

Of the remarkable forms constituting the two families of the Order MONOTREMATA (so called from its members possessing a single excretory passage), we have good examples; they are all confined to the Australian region. The single member of the first family is the DUCK-BILLED PLATYPUS (*Ornithorhynchus anatinus*), or as it is sometimes called by the colonists, the Water-Mole, although of course it has no affinity with the latter animal, its nearest relatives perhaps being the Amphibia. The female Duck-bill lays two white eggs about three-quarters of an inch in their longest diameter, and the young ones are subsequently nourished with their mother's milk. The food of these animals consists of aquatic insects, worms, and crustaceans.

The ECHIDNA, the only member of the second family, is a totally different animal in appearance to the Duck-bill; in structure of the head, as well as in its habits, it resembles the Ant-eaters, but the back is covered with spines, varying in length in different races, of which there are three well-marked types. The first occurs at Port Moresby, New Guinea, and is distinguished by its small size; the typical variety which is found on the Australian mainland, is of medium size; and the spines of the back are long and straight, often reaching two inches; the third and largest form is confined to Tasmania, and the spines of the back are very short, often quite concealed by the hair. We have specimens of the second and third varieties.

The next division is that of **MECATHERIA**, and consists of the Order MARSUPIALIA, represented by many species, presenting great diversity both of form, structure, and habits, but all possessing certain characters in common, which are essentially distinctive. It may be mentioned that they are all implacental, the young are born in a very rudimentary condition, and are transferred by the parent to the marsupium or pouch (which, however, is developed in varying degrees, and in some few is not present), where they become attached to the nipple. The Opossums are the only group belonging to this order which are found beyond the limits of the Australian region and the adjacent islands.

The DASYURIDÆ, of which we have *D. maculatus* and the pretty little *D. viverrinus*, are inhabitants of Australia and Tasmania. They are small Civet-like animals, nocturnal, hiding in holes among rocks and hollow trees by daytime, and wandering forth at night to feed on small animals and birds. The next of the order is a squirrel-like animal known as the BANDED MYRMECOBIUS or Ant-eater (*M. fasciatus*). The TAS-

MANIAN WOMBAT has a singularly ursine appearance, and its habits are somewhat similar to those of that family. It is entirely a vegetable feeder of nocturnal habits. The various species, three in number, are all confined to Australia and Tasmania.

We now come to the family of PHALANGERIDÆ, of which we have four species. Flower and Lydekker thus describe them. "Phalangers are small woolly-coated animals, with long, powerful, and often prehensile tails, large claws, and, as in the American Opossums, with opposite nailless great toes. Their expression seems in the day to be dull and sleepy, but by night they appear to decidedly greater advantage. They live mostly upon fruit, leaves, and blossoms, although some few feed habitually upon insects, and all relish, when in confinement, an occasional bird or other small animal. Several of the Phalangers possess flying membranes stretched between their fore and hind limbs, by the help of which they can make long and sustained leaps through the air, like the Flying Squirrels . . . . The Gray Cuscus (*P. orientalis*) was the first of the Marsupials of the eastern hemisphere brought to the notice of Europeans . . . in 1611." In the collection will be noticed the VULPINE PHALANGER (*Trichosurus vulpecula*); COOK'S PHALANGER (*Pseudochirus peregrinus*), which was discovered by Captain Cook at Endeavour River on his first voyage; and two of the FLYING PHALANGERS (*Petaurus sciureus*), and the pretty little SHORT-HEADED PHALANGER (*Petaurus breviceps*).

The last family of this remarkable order is that of MACROPODIDÆ, the Kangaroos, a well-marked and numerous group, consisting of a large number of species, the great majority of which are found in Australia and Tasmania, but they also occur

in New Guinea and the adjacent Islands. They vary greatly in size from that of a rabbit to the height of a man, and are all vegetable feeders. In the female the pouch is highly developed, and the young one seeks its shelter long after it has become able to run or rather bound by the side of its mother. The pretty little head, peeping out of its warm and soft retreat, is a very interesting sight, and one often to be witnessed in the gardens of the Zoological Society, where several species have bred.

The third sub-class, **EUTHERIA**, contains the whole of the remaining groups of Mammals, which greatly as they may differ from each other in appearance, mode of life, and other respects, all possess one feature in common, viz., "the presence of an allantoic placenta, by means of which the foetus is nourished within the uterus of the mother," and hence they have been called Placentalia. The nine orders into which this great sub-class is divided have already been enumerated at *p.* 144, and will only be again referred to as the specimens illustrating them are passed in review.

The first order is that of **EDENTATA**, comprising the Sloths, Ant-eaters, Armadillos, Pangolins or Scaly Ant-eaters, and the Ard-varks or African Ant-eaters. Of these five families the first three are inhabitants of the New and the last two of the Old World.

Of the Sloths and Great Ant-eaters we have no representatives, but of the **DASYPODIDÆ** or Armadillos, and the **MANIDÆ**, Pangolins or Scaly Ant-eaters, we possess several specimens.

Some twenty species of Armadillo are recognised. They are found only in the warmer parts of America, the former home of their gigantic predecessors, the extinct *Glyptodon*. Their food is very variable, con-

sisting of both animal and vegetable substances ; they burrow with great rapidity, and are mainly diurnal, but vary somewhat in their habits. We have four species, the WEASEL-HEADED ARMADILLO (*Dasypus sexcinctus*) found in Brazil and Paraguay ; the PICHÍ, or Little Armadillo (*D. minutus*), found in the Pampas, south of Buenos Ayres ; the PEBA ARMADILLO (*Tatusia novemcincta*), which inhabits South America from Texas to Paraguay ; and the southern form of the same genus, the MULE ARMADILLO (*T. hybrida*), the latter so-called from its elongated ears.

Still more singular animals are the members of the Family MANIDÆ, known as the Pangolins or Scaly Ant-eaters. There is only one genus, *Manis*, and all the species belong to the Old World, ranging from Africa, south of the Sahara, to South-eastern Asia. They are, as a rule, burrowing animals, but some partially arborial, of nocturnal habits, and their food consists mainly of ants. When at rest they roll themselves into a ball, and are perfectly secure from the attacks of enemies. In appearance they have, not inaptly, been likened to "an animated spruce-fir cone furnished with a head and legs." There are two groups of these animals, corresponding with the geographical distribution of each genus. The Asiatic form only is represented in the Museum collection. Of this there are three species, the INDIAN PANGOLIN (*Manis pentadactyla*), found in India and Ceylon ; the CHINESE PANGOLIN (*M. aurita*), inhabiting Nipal, Assam, and China ; and the MALAY PANGOLIN (*M. javanica*), a small long-tailed species found eastward of the Bay of Bengal, in Celebes and North eastern India.

Thus far our collection has been a very fairly representative one, but henceforth it will be of a very meagre character. We have to pass over the whole



of the two orders SIRENIA and CETACEA, both of which, however, contribute to the Osteological Collection. In

### Cases XI. and XII.

begin the important order UNGULATA, which is made up of the hoofed animals. Of these we have at present a very poor selection. There is a fairly good WILD BOAR, and a prettily-striped young one. The heads of some South African species of Antelope will be found in the next corridor, but here we can only show one small species of DEER and a little MUSK DEER, a SYRIAN GOAT (*C. hircus*) and a MOUFLON (*Ovis musimon*). Of the RODENTIA, or gnawing animals, a well-defined order, we have some Flying Foxes and numerous species of Squirrels, the smallest of which is a pretty little Palm Squirrel known as *Sciurus palmarum*, also the Scandinavian LEMMING (*Myodes lemmus*), which at uncertain intervals makes such marvellous migrations, passing in a direct line over mountains and through rivers and lakes, till they reach the sea, into which the remnant of the great army, which started never to return, perishes. Another interesting Rodent is the South American COYPU (*Myopotamus coypu*), one of the largest of the order which lives in burrows near the water, feeding on aquatic plants. There are also some good examples of the PORCUPINE (*Hystrix cristata*), which is found throughout Southern Europe and North and West Africa. There are several species, all of similar habits, hiding by day and coming out to feed on an entirely vegetable diet, by night. Of course their remarkable armature of spines is well known to all. The South American Golden AGUTI (*Dasyprocta aguti*), a very pretty but destructive animal, is the last of the Rodents in the foreign collection.

## Cases XIII. to XVII.

It will be convenient to treat these five cases as one, as it is difficult in some instances to separate the contents. The orders which they illustrate are those of the CARNIVORA, the more typical forms of which are highly predaceous, and their food consists as a rule (not without exceptions, however), of warm-blooded animals; the INSECTIVORA, which as their name implies, subsist as a rule on insects; and third the CHIROPTERA or Bats, one section of which (the Flying Foxes), is frugivorous, the remainder being insect feeders.

Of the first of these three orders, CARNIVORA, a very juvenile example will be seen in a small case in the middle of the room; it is a pretty little Lion cub, three months old, which was born in Mr. Bostock's Menagerie; in the Wall Case is a Leopard (*Felis pardus*) derived from the same source; a European Lynx (*F. lynx*) and a very pretty OCELOT (*F. pardalis*). Further on are Indian CIVETS, ICHNEUMONS, and MUNGOOSE, the STRIPED HYÆNA (*Hyæna striata*) an inhabitant of Northern Africa and Southern Asia, a nocturnal beast, and a foul feeder. A fine specimen of the European WOLF (*Canis lupus*), accompanied by a hybrid between a Wolf and a Dog, bred in a Menagerie; near to which is a JACKAL (*Canis aureus*), an animal of very wide geographical distribution, which, like the Wolf, readily interbreeds with its near relative the Dog, an example of this cross bred at Melton Constable is in the same case. A beautiful white Esquimaux Dog is in a separate case, and of the Foxes there are examples of the ARCTIC FOX (*Canis lagopus*) and the BENGAL FOX (*C. bengalensis*).

The URSIDÆ, or Bears, are not strictly carnivorous,

but indulge in a mixed diet, even the Polar Bear adding grass to its menu of seals and fishes when opportunity offers; we have two good specimens of the HIMALAYAN BLACK BEAR (*Ursus torquatus*), an inhabitant of Northern India and China, and a vegetable feeder. The next family is represented by the RACCOON (*Procyon lotor*), a common North American species found as far north as Alaska, and southward into Central America; it is strictly nocturnal, making its home in hollows of trees, whence it sallies forth to gratify its omnivorous appetite. A near relative to the Raccoon is the COATI, or as it is often called, the *Coati-Mundi*, of which we have the Brown or White-nosed Coati (*Nasua narica*), found in Mexico and Central America; there are two species, both of which are abundant where found, gregarious and mainly arboreal, hunting their prey, which consists of lizards, birds, eggs, and fruit, in parties of eight to twenty. The next family is that of MUSTELIDÆ, to which belong the OTTERS, the American SKUNKS; and the typical genus *Mustela*, represented by the well-known MARTENS, POLECATS, and WEASELS, all British, and all blood-thirsty little animals. The Martens, one species of which, *Mustela martio*, the Pine Marten, of which a specimen is here shown, was frequent in this county when woodlands were more extensive, it is now rare in England, but still found in Northern Europe and Asia.

We must now pass over a whole sub-order, PINNIPEDIA, the aquatic carnivora, consisting of the Eared Seals, Walrusses, and True Seals (some representatives of which will be found in the British section and in the Osteological Collection, but have no place here), and call attention to some few members of the order INSECTIVORA, consisting of the Hedgehogs, Shrews, Moles, etc., better represented in the British

collection than here. Most of the members of the order are small terrestrial animals, and are found throughout the temperate and tropical parts of both hemispheres, with the exception of South America and Australia.

There is one more order, that of **CHIROPTERA**, the Bats, which must be mentioned ; it is divided into two sub-orders, the first of which is devoted to the Frugivorous Bats and Flying Foxes, both of which are fruit eaters, and the second to the Bats and Vampires. Of the **FRUIT-BATS** we have several species, chiefly Australian, collected by Captain Stanley, and also a number of the true **BATS**.

### Case XVIII.

The last order, and that which contains the highest forms of animal life, is that of **PRIMATES**, consisting of two sub-orders, **LEMUROIDEA**, of which the Lemurs are the type ; and **ANTHROPOIDEA**, containing the higher apes. The **LEMURS**, to use the anglicised form of the Latin name applied to them by Linnæus from their ghost-like appearance and nocturnal habits, are not a numerous family ; they are all strictly arboreal, living on fruit, eggs, small birds, reptiles, and insects, and are for the most part nocturnal. The true Lemurs are restricted to Madagascar, where they are very abundant, but a few species, less typical in character, extend through the African continent westward as far as Senegambia, and others are found in the oriental region as far east as the Philippine Islands and Celebes. (*Flower and Lydekker*.) The only species we possess is the Ring-tailed Lemur (*Lemur catta*), which has its long furry tail marked with alternate rings of black and white.

The second sub-order, ANTHROPOIDEA, includes the remaining members of the order Primates, commencing with the Marmots, through the Monkeys, Baboons, and Apes it leads up to Man.

In the present day with the one exception to be mentioned hereafter, no Anthropoids are found in Europe or in the Australian region, but are widely distributed in the warmer regions both of the Old and New World, those inhabiting each of these divisions are, however, widely different. Some species are mainly terrestrial, but the bulk are essentially arboreal; in some the tail is eminently prehensile, and practically constitutes a fifth limb, and in none is this more conspicuously the case than in the South American SPIDER MONKEYS. These creatures spend their whole time in the tree tops, travelling from bough to bough, a mode of existence for which they are pre-eminently fitted. They are found in abundance in the forests of Guiana and Brazil, and although apparently endowed with all the requirements for an active life, are said to be of very sluggish habits. The BLACK-HANDED SPIDER MONKEY (*Ateles geoffroyi*) and the RED-FACED SPIDER MONKEY (*A. paniscus*) are good representatives of this long-limbed race.

A very singular New World form is the BLACK SARKI (*Pithecia satanas*) a native of Brazil, its long hair and singularly diabolical appearance render it very conspicuous.

The next family are the Baboons, of which there are several species, all confined to Africa; they are fierce animals, incapable of being tamed, frequenting mountain districts and usually associating in large troops. The South African CHACMA (*Cynocephalus porcarius*) is one of the typical Baboons, the structure of which it will be observed is adapted rather for a

terrestrial life than for climbing. Another species is the ANUBIS BABOON (*C. anubis*), a representative of the West African group. The BLACK APE (*Cynopithecus niger*), confined to the Island of Celebes, forms a connecting link between the Baboons and the next genus *Macacus*, of which we have three examples, the most noticeable is the celebrated BARTARY APE (*M. inuus*); a colony of this species inhabits the rock of Gibraltar, and is the only quadrumanous animal found in Europe; the other two are *M. nemestrinus*, the PIG-TAILED MONKEY of Java, and the Indian WANDEROO (*M. silenus*). With the exception of the first named the members of this genus are exclusively Asiatic; they are sociable in their habits, often associating in considerable flocks, omnivorous in their appetites, feeding on fruits, seeds, and occasionally lizards and frogs, whilst one species displays a liking for crustacea. The genus *Cercopithecus*, strictly confined to Africa, is a numerous one, we have three representatives, namely, the VERVET (*C. lalandi*), SYKE'S MONKEY (*C. albigularis*), and the PATAS MONKEY (*C. patas*.) The "Guenons," or grinning monkeys, as they are designated by the French, are well-known inhabitants of menageries, very tractable, quick at learning tricks, and of hardy constitution, hence they are great favourites with the organ men, and may frequently be seen in such company.

Of the crowning family SIMIIDÆ, or tailless Old World Apes, embracing the Gibbons, Orangs, Chimpanzees, and Gorillas, we at present possess no examples.

### Osteology.

It only remains, in the Natural History portion of

the Museum, to say a few words with regard to the collection of skeletons which will be found in the next corridor. Not sufficient material was available to permit of an attempt at even a representative collection of the chief forms of the skeleton in the various types of animals ; but there are sufficient examples to be of considerable service to the student, and many animals are represented which are not otherwise to be found in the collections, the MARMOSET (*Haplorhina jacchus*) for instance in

#### Case I.

is one of these. In this case will also be seen skeletons of the Lioness (2), Dog, Striped Hyæna, Polar Bear, Cat, Otter, Hedgehog, Squirrel, Hare, and Rabbit.

#### Case II.

contains skeletons of the Leopard, Bloodhound, Wild Pig, and several skulls of Dogs and Pigs.

#### Case III.

has skulls of the Dugong and Walrus, and some extremely fine Walrus tusks ; two very large tusks of the African Elephant, as well as a skull of the same species ; also teeth of both the African and the Indian Elephants, and a good skeleton of a Camel. In

#### Case IV.

are a number of skulls of various species of Dolphins and Seals, some of them of considerable interest, a fine Narwhal's tusk, and three skulls of Hippopotami, one of which is a remarkably fine one from the River Niger.

**Case V.**

In this case are skeletons of a Hindoo Cow, and of the Zebra (*Equus zebra*), an animal rapidly becoming very rare, as well as several skulls of Horses, etc.

**Case VI.**

A skeleton of the Fallow Deer will be noticed in this case, as well as those of several birds, the Turkey, Pelican, Albatross, Mute Swan, and Canada Goose. Skulls of many species of Dolphin and jaws of Sharks, with beaks of the Saw-fish. The fishes of the genus *Pristis*, armed with these formidable weapons, are abundant in the seas of the tropics. There are also skulls of Chelonians and of the Indian Crocodile (*Crocodilus palustris*). One of the latter, which belonged to an enormous animal thirty feet in length, has a sufficiently gruesome history. In life it frequented a river in the island of Borneo, where it had long been a terror to the inhabitants. A few weeks previous to its capture it attacked two men upon a raft—father and son. It caught the son by the arm and took him under water. The father jumped into the river to rescue him, when the crocodile left the son and devoured the father. The son reached the shore much injured. It soon after upset a canoe and devoured the chief of a Malay village, whose relations, after long watching, succeeded in destroying the reptile. This terrible story was related to Captain Henderson, (who gave the relic to Captain Glasspoole), by the Dutch resident, De Groote. The events occurred in 1827.

Near the entrance to the corridor is the skull of an Indian Elephant, from Ceylon, a recent acquisition.



Above the cases are arranged a number of heads of South African Buffaloes and Antelopes, and in the next room, devoted to Geology, is a handsome head of the African Elephant, which was too large to find a place here.

### Geology: Mineral and Fossil Remains.

In Wall Case 1 there is a fine example of the trilobite, *Calymene Blumenbachii*. The body of the trilobite consisted of three lobes, formed by successive rings or segments, and had an armoured shield on its head; most of them were furnished with a pair of crescentric eyes composed of many separate divisions or lenses. Many were able to roll up into a ball. The Silurian formation, which like the Cambrian runs to an enormous thickness in Wales, is represented by examples of the *Spirifer*, a large brachiopod, and a sessile spreading coral called *Favosites*, and another named *Cyathophylum*. In Table Case 3 will be observed some Silurian fossils, including *Terebratula*, *Atrypa*, *Lituites*, etc.

The first true fishes are met with at the close of the Silurian period, but they become so numerous in the Old Red Sandstone that this has been called "The Age of Fishes." These early forms of fishes, having an imperfect skeleton, were panoplied in shining armoured plates, and have therefore been called "ganoids." Plant life comes in with the Silurian and Devonian formations. The vegetation became profuse in the Carboniferous or Coal-bearing era. What these early forms of plants were like we see in Wall Cases 1 and 2 in the specimens of *Sphenopteris*, *Calamites*, *Lepidodendron*, and *Sigillaria*. The two last named exhibit the scars left by the scale-like outer covering of this extinct family of trees that grew so luxuriantly at this period. These trees were, in fact,

gigantic club-mosses, many of them fifty or sixty feet high. *Calamites* were among the commonest forms of vegetation, being nothing more nor less than a huge *Equisetum* or "horse's tail," similar to those growing in our ditches and on waste land. But they were of great height, some twenty or thirty feet. The ferns of this period were numerous, and the fronds of *Sphenopteris*, *Neuropteris*, etc., are well preserved.

The Permian beds are to some extent represented by specimens from the Magnesian Limestone in Table Case 3. To the Permian formation belongs the fossil fish *Palæoniscus comptus*, and from the Trias came the flagstones impressed with the hand-like footprints of *Labyrinthodon* or *Cheirotherium*.

We now come to fossil remains from another series of rocks in Wall Cases 3, 4, and 5. The rocks from which most of these remains have come are known as Mesozoic or Secondary. They comprise the Trias, Lias, Oolite, and Chalk formations. Enormous in duration as was this secondary age, it was not one-third that of the Primary, if the comparative thickness of the two series be any criterion. This Secondary Age is specially that of Reptiles. The Lias, which is prolific in fossils, has furnished the Museum with an abundance of remarkable examples. The most noticeable of these is the *Ichthyosaurus*, discovered at Lyme Regis in 1811, and mounted in a frame in Wall Case 4. This is one of the marine Lizards, which, with paddles like a whale and a jaw like that of a crocodile, was sometimes twenty feet long. There are also portions of the remains of these reptiles. One specimen is that of the head and jaws almost perfect. The fish of the Liassic period are represented by the *Dapedius* (Wall Case 3), a broad form covered with bony enamelled plates instead of horny scales.

Near these is a beautiful specimen of the "Stone

Lily" of the Lias, called *Extracrinus briareus*, from the number of its arms. Many of the reptiles of this period were winged and known as *Pterodactyles*, from *pteron*, a wing, and *dactylos*, a finger. Remains of small specimens of these creatures are in the collection. They had a bird-like head, with reptilian teeth, fore feet to which the wings were attached but not adapted for walking, and hind legs. There is a large series of vertebral bones of the monster saurians of this period.

Turn to Table Case 3, and there will be seen vegetable remains, chiefly ferns, from the Lower Oolite, and a number of Mollusca, including the *Terebratula* or Lamp Shell, which originated in the Primary period, and has continued to the present day; and *Modiola*, a kind of mussel, as well as *Apiocrinus*, a form of the family of the Stone Lily, which was very abundant in the Carboniferous Seas. The Inferior and Great Oolites, Cornbrash, Oxford Clay, Coral Rag, and Portland beds are members of the Oolite. Among the specimens from these formations will be found *Gryphæa*, *Pecten*, *Cidaris*, *Trigonia*, *Ammonites*, teeth of fishes, etc. The Coral Rag is very rich in corals. From the Portland Stone are examples of shells, including *Mya*, *Pinna*, *Buccinum*, and *Turritella*. Ammonites, some of them of great size, constitute a striking feature of the Oolite formation, and some of those from the Portland beds are very large, as is shown by the specimen in the Wall Case 6. The living ally of the Ammonite is the Nautilus, the Ammonite differing from it in the folding of its septa or chambers.

The Cretaceous series of the Secondary Rocks is strongly represented. From the Wealden, formed in the delta of a great river, are remains of a huge land Lizard, the *Megalosaurus*, often thirty feet long, and

a few land plants. There is also in this Table Case 3 a collection of fossils from the Greensand, including Sponges, Oysters, Pectens, etc. The Cambridge Greensand has yielded bones and teeth of lizards, beside their exuviae or coprolites, which have been used for manure. From the Gault, which occurs at the north-west of Norfolk with the Greensand, we have specimens of *Polythecia*, *Spongia paradoxa*, *Teretrabula*, etc., some of them of a deep-red colour, obtained from the well-known Red chalk of Hunstanton. Table Case 4 is devoted to a grand collection of fossils from the Lower Chalk, made by the late Mr. C. B. Rose. The chalk itself contains numerous remains of minute organisms called *Globigerina*, and in the fine calcareous deposit, formed of their remains, shells of various descriptions, with corals and sponges (*Ventriculites*), have been preserved. The period of duration of the ocean, in whose bed the chalk fossils were buried till it was augmented to a thickness of hundreds of feet, must have been enormous. From the Upper Chalk are shown, in Table Case 4, besides numerous shells, remains of *Pterolactyles*, *Plesiosaurus*, and *Mosasaurus*, some obtained from the Chalk Pit at St. James' Hill, Norwich. The *Mosasaurus* or *Leiodon anceps* was a large saurian; an entire skeleton, fourteen feet long, was once dug out of the Chalk of St. James' Hill. The teeth and bones of the same species of saurian are frequently found. The Upper Chalk is banded at intervals with flints in which, as many examples show, are preserved in a solidified state some of the life forms that are only procurable in a fragile state from the Chalk. In the Wall Cases, 7 and 8, and in Table Case 4 are exhibited representative fossils of the Upper Chalk and Chalk Marl, including teeth of fishes, cephalopods, sea urchins, and a specimen of *Inoceramus digitatus*, covered with

marine worm tubes (*Serpulæ*), presenting just the same appearance as we often see on the shells of large oysters of the present day.

We now come to the Tertiary or Kainozoic Life period, which comprises the Eocene, Oligocene, and Pliocene formations. The Eocene strata occupy in England two distinct tracts, termed the London and Hampshire Basins. Among the organic remains of the London clay are species of mammals, birds, turtles, crocodiles, fishes, mollusca, crustacea, protozoa, and plants. The climate of the period was rather tropical. Flower and fruit-producing plants are now found with the birds and mammalia. There are shown in End Wall Case 9 fossil specimens of *Chelonia* or turtles, as well as the humerus and part of the jaw of the *Glyptodon*, a great Armadillo-like mammal, which flourished in the last geological age in the region of South America, where there is still a fauna different in character from that of other parts of the world. Some of the birds of the earlier Tertiary period were of enormous size, and similarly large birds have been found in a semi-fossilized condition in the Southern hemisphere. The bones of the *Dinornis* from New Zealand belonged to a remarkably large wingless bird. Judging from the vast number of remains of this bird found in New Zealand, and from the extraordinary diversity in size of their skeletons, the *Dinornis* or gigantic Moa must have enjoyed for long ages complete immunity from the attacks of wild beasts and man. The Moa varied in height from three to upwards of ten feet. The bones here shown are portions of those of *Dinornis casuarinus*, and *D. elephantopus*. The latter was undoubtedly a bird of great strength and heavy-footed, as the name (elephant-footed) indicates. In the same case are shown cast of the bones and

models of the eggs of another extinct bird, the *Apyornis*, found in superficial deposits on the Island of Madagascar.

The most important collection in the geological department is that which very fairly and fully illustrates the geology of the Eastern Counties, the Pliocene deposits, which extend far and wide, in varying thickness, over the Eocene and Cretaceous Series. The Pliocene comprises beds of Crag—Coralline Crag, Red Crag, Norwich Crag—Chillesford Sands and Clays, and the Forest Bed Series. In Table Cases 5 and 6 will be found fossils from the Suffolk or Coralline Crag, which consists of a series of calcareous shelly sands, sometimes marly, having a thickness of from forty to sixty feet. The Coralline Crag was so called because it was supposed to be rich in fossil corals, which, however, proved to be *Polyzoa*, organisms allied in character to our common sea mats. This formation is remarkable, not only for its large percentage of extinct shells, but also for the presence of Southern forms, such as are now found in the Mediterranean area. Below the Red Crag formation there occurs a bed with rounded phosphatic nodules, septaria, water-worn teeth, bones of land animals, and also parts of whales and of the enormous shark called *Carcharodon megalodon*. Specimens of these are shown in Table Case 5. The Red Crag, a dark-red shelly sand, sometimes yellow, brown, or grey; it is well shown at Walton-on-the-Naze, Sutton, Bawdsey, etc. The Red Crag contains fewer shells of species now living in the Mediterranean and warmer latitudes. The fossils of the Red Crag include *Fusus*, *Pecten*, *Macra*, *Tellina*, *Cardium*, *Mytilus*, *Nassa*, *Buccinum*, *Natica*, *Purpura*, *Turritella*, etc.

The Norwich Crag (Table Case 6) which is to be

well seen at Bramerton and Thorpe just above the Chalk, represents a formation of about thirty feet, consisting of laminated clays and shingle, with in places seams of shells. The story told by these fossil shells is that the climate was gradually getting colder, till at last we have many shells only to be found in the northern or Arctic seas. There are no fewer than a hundred species of shells found in the Norwich Crag.

The Forest Bed Series forms one of the most remarkable deposits of East Anglia. This bed, so noted for the mammalian remains which it has yielded, maintains a remarkable persistence wherever it has been observed, at about the same level, along the shore or foreshore between Runton, Norfolk, and Kessingland, Suffolk. It overlies the Norwich Crag Series. The late Mr. John Gunn, of Irstead, who made the Forest Bed his special study, and who formed this grand collection of Mammalian remains, states that the soil of the Forest Bed appears to consist of an argillaceous sand and gravel (pan) or a compound of both, and to have been deposited in an Estuary. Bones of *Elephas meridionalis*, together with those of a great variety of deer and other mammals, are found in it, especially in the gravel, which, on that account, is called the "Elephant Bed." The bones are sharply fractured, but not rolled, and are associated with those of whales and fragments of wood, indicating that the Estuary was open to the sea, most probably northward, for the admission of the whales; while it appears to have been closed at the Straits of Dover and Calais to afford a passage for the mammals into this country. This deposit of the soil may be regarded as the first phase of the Forest Bed; and here, we may observe, a long interval may have intervened between this and the

second phase, which dates from the raising of the soil to the surface of the waters and the growth of the forest upon it. In this the remains of the *Elephas antiquus* are most abundant; other varieties of the elephant are found here, together with *Rhinoceros etruscus* and *Trogontherium Cuvieri*. This may be regarded as the True Forest Bed; the stools of the trees (see specimen under table case No. 3), belonging to it are visible along the coast at various places from Kessingland to Cromer.

In Wall Case 10 are displayed the vertebræ and bones of whales, and teeth and horns of animals, from that portion of the Forest Bed Series which was estuarine. As the visitor passes before the case there will be seen remains of these ancient and huge forms of animal life that lived in these latitudes when there was a different distribution of land and water, and when the land was covered with a dense arboreal vegetation. We have, in Wall Case 11, bones of deer and the musk ox, and teeth of the *Trogontherium*. One of the finest objects in the collection is the almost entire antler of an extinct species of deer, *Cervus Sedgwickii*, so named after the venerable Canon Sedgwick, the well-known professor of geology. This specimen came from "the iron pan" at Bacton, on the coast. From the crown or ridge of the antler to the summit of the tip is at least four feet, whilst the lateral extension cannot be less than six feet. The extinct Irish Elk hardly exceeded this deer in size. Close to this fine relic is a collection of teeth and other bones of the *Elephas meridionalis*; and in Wall Case 12 is the jaw of *Hippopotamus major*, from Cromer, presented by Miss Anna Gurney, alongside the scapula of a *Rhinoceros* from Mundesley. In the next Case (13) are parts of the pelvis of an elephant from the cliff at Mundesley, with metatarsal and



other bones, including that of the ball and socket joint of the humerus. Most striking objects below are the pelvis and sacrum of another elephant from Mundesley. There is a fine humerus or upper part of the fore leg of an elephant, found in 1836, after a very high tide, exposed in the cliff near Bacton (Wall Case 14). Several specimens of the femur, thigh bone, and of the humerus or fore leg of elephants, from the same neighbourhood, with many teeth, and the lower jaw of *Elephas meridionalis*, found near Mundesley, help to supply evidence as to the character of the fauna of the Forest Bed period. The gigantic height and size of the elephants of the Forest Bed period may be judged from an inspection of these bones in conjunction with the monster tusk (Wall Cases 15 and 16) found at Runton, immediately under the Forest Bed, presented to the Museum by Sir T. F. Buxton. This tusk is nearly ten feet in length and two feet eight inches in girth. Dr. Falconer was of opinion that the animal to which this tusk belonged must have stood between sixteen and seventeen feet high.

The concluding Wall Cases represent the fossil remains of the Quaternary or Post-Tertiary formation, which include beds of drift sand, gravel, and clay, deposited by glacier, ice-sheet, and iceberg action, during a period of intense cold. As a consequence, the Forest Bed period was succeeded by one of Arctic temperature, when the area was overspread by enormous masses of sands, gravels, and clays that now form for a great thickness the agricultural and brickearth bearing soils of East Anglia. The Quaternary deposits consist of boulder clays and gravels, of raised beaches, of valley gravels and brickearths, and lastly of blown sand, tufa, cavern deposits, submarine forests, and peat. When the more intense portion of

the Great Ice Age had passed away the animals which roamed the land were more nearly allied to those now existing. They, however, included *Elephas primigenius* or mammoth, *Bos primigenius*, *Cervus tarandus*, *Cervus elaphus*, *Hippopotamus*, *Hyæna*, *Rhinoceros*, *Sus*, etc. Examples of the remains of some of these animals are shown in Wall Cases 19 and 20. The climate in which the mammoth, etc., lived was still exceedingly rigorous, for that beast was covered with long woolly hair to protect it from the cold. Man was a contemporary of this old fauna of the Quaternary period, for on fragments of tusks of the mammoth rudely-executed drawings of animal forms indicate that he was present, and had then reached the point when arts were introduced.

Belonging to a still later portion of the Quaternary period the Alluvial deposits of our rivers have yielded remains of the Wolf and other animals that have become extinct within historic times. A fine skull of the Gigantic Ox, from a valley deposit near Aylsham, illustrates this group of animals. These serve to connect the past with the present.

### **The Fitch Collection.**

The flight of stairs in the Geological Gallery leads to a small handsomely-fitted-up room, specially constructed to receive the valuable antiquarian collection given to the Museum just before his death by Mr. R. Fitch, F.S.A., whose miniature portrait is to be seen in the case in the centre of the apartment, and one taken at a later date hangs on the wall. Mr. Fitch, who died in 1895, at the advanced age of 92, had, throughout his long life, been a collector of all kinds of local antiquities, and in this work a deep interest was taken by his wife, who was born in the Castle, of

which her father, Mr. Johnson, was for some time Governor.

Palæolithic man, or man who was contemporaneous with the Post-pliocene fauna, the mammoth, the cave bear, etc., is here represented by specimens of his rude and rough handiwork in the form of flint implements fashioned out of lumps of flint chipped into the form of a celt or adze. There is a large collection of these rude implements, fashioned by Palæolithic man, found at Melford, Lakenheath, Thetford, Santon Downham, Broom Hill, and other places, on the slopes of what was a broad river when, in Post-pliocene times, Britain stood 600 feet above its present level, and the streams now discharging themselves on the Eastern coast joined with those of the continent to form one vast river flowing through the Valley of the German Ocean (see Boyd Dawkins' *Early Man in Britain*). The rude weapons found on ancient river terraces, on the banks of the Ouse in Norfolk and Suffolk, are those of River Drift man, who "was a hunter of a very low order, but not lower than the modern Australian, and from his wide range over the Old World was probably of vastly greater antiquity than his successors in Europe," the Cave men; for while "there is no reason for the belief that the River Drift man possessed any artistic skill," the Cave man "possessed a singular talent for representing the animals he hunted."

A wide interval separates the River Drift or Palæolithic man from the Neolithic man, whose productions, even at an early stage of the period, indicate a decided advance upon those of his predecessors; but at a later stage the polished implements and skilfully-fashioned arrow-heads show that he had made even greater advances in useful arts. Specimens of the tools and weapons of this period, found at Heckingham, Martlesham, Diss, Tasburgh, Grundisburgh, Belton,

Ipswich, Dunham, etc., are interesting relics of the pre-historic farmer and herdsman, who everywhere commenced the story of civilization. These people co-existed with such wild animals as the beaver, Alpine hare, brown bear, grisly bear, elk, urus, and wild boar, and had domesticated the dog, horse, sheep, goat, shorthorn, and hog. They had so far advanced in the manual arts that they fashioned a rude kind of pottery, spun and wove coarse fabrics, and cultivated cereals. At Weeting, near Brandon, there are some hundreds of hollows which have been proved to be filled-in shafts leading to galleries in the chalk, from which these Neolithic folk obtained a specially fine pure form of flint, readily workable into weapons and implements. In a wall case may be seen an example, illustrating how these implements were fitted to a handle.

The age of Bronze, succeeding that of Stone, is illustrated by some admirable examples of bronze weapons and implements found at Thetford, Methwold, Stibbard, etc. This bronze age dates back to a period long preceding the Roman occupation of Britain, though it is probable it extended, with a continued partial use of polished stone weapons, far into the historic era.

The cases containing these ancient relics of the dawn of civilization, showing that the fighting man and the hunter always precedes the cultivator and the cattle raiser, are arranged in proper sequence, so that the visitor has no difficulty in discerning at a glance the characteristic works of the successive stages of early human progress, anterior to the invention or introduction of letters.

A fine collection of Roman antiquities, found principally in Norfolk, shows that a high civilization was introduced into Britain by force of arms among



ROMAN ANTIQUITIES FROM CAISTER.

*Norfolk Archæology, Vol. V., p. 201.*

a people who had not advanced beyond the bronze age stage. This collection includes a variety of articles that would only be known to a people indulging in many luxuries, and having considerable acquaintance with the fine arts. There will be found among them buckles, rings, brooches, tweezers, pendants, figures of gods, men, and animals. Very many of these antiquities were found at Caister Camp four miles from Norwich, close by the railway running from the city *via* Ipswich to London. This camp, thirty acres in extent, is still intact in form,



• BRONZE BUST OF GETA FOUND AT CAISTER, NEAR NORWICH.

*Norfolk Archaeology, Vol. IV., p. 232.*

parts of the walls being visible, where the earth has not been piled up upon them. Among these Caister antiquities are a bust of Geta, a Roman Speculum or mirror, a figure of Bacchus, a terra-cotta relief of a head of Diana, etc. The bust of Geta has at the back a stump of a pin with which to fasten it to some object. The mirror is one of a few examples which have been found by antiquarians. There is one at

Copenhagen like that in this collection. Both have perforated rims, and an extremely brittle reflecting surface, the metallic compound of which the reflecting disc is composed is known as speculum metal, and "the disc of a reflecting telescope is apparently identical in its combination with the face of the Caister mirror." The figure of Bacchus is easily recognisable from its holding a bunch of grapes. There will also be seen in this collection a Roman iron key of a common type; a phallus in bronze, like



JEWELLED FIBULA FOUND AT SWAFFHAM.

*Norfolk Archaeology, Vol. V., p. 354.*

those found in France; a cock in bronze; and various descriptions of fibula or brooch. The coins found at Caister in association with these antiquities cover a period extending from the first to the fourth century. Geta, whose bust in bronze is here produced, was the younger son of the Emperor Severus, who, with his brother Caracalla visited Britain, and who was subsequently poniarded by Caracalla in the arms of his mother.

In the wall case is arranged a series of Romano-British Urns, a class of antiquities which has obtained more or less attention in Norfolk since the days of Sir Thomas Browne, who wrote his celebrated treatise on *Urn Burial* upon some urns discovered at Walsingham and Brampton. These urns witness to the Roman practice of cremation.



ROMAN URN FROM HEDENHAM.

*Norfolk Archæology, Vol. VI. p. 154-156.*

In a case below, alongside the Roman antiquities, is a collection of antiquities for the most part Saxon, some of them from Felixstowe, where Felix, the first Bishop of East Anglia, landed in the seventh century. Among them are two torque rings, of beautiful workmanship, encrusted with a fine green patina, believed



to have been enclosed with the skeleton of a Roman lady found enveloped in a rude coffin of lead at Stone Hills, near Norwich.

In the centre one of the table cases is displayed a handsome silk and gold lace embroidered and trimmed bag, as large as a lady's satchel. This is an Elizabethan purse, which was worn outside at the girdle, like



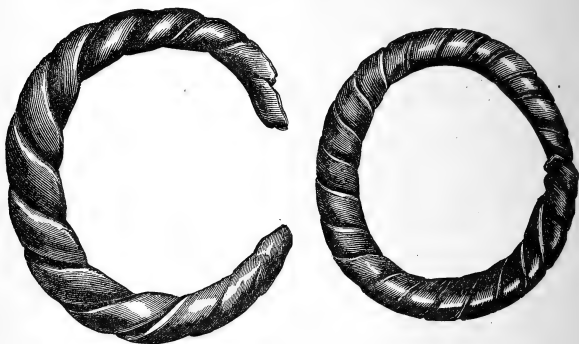
ROMAN URN FROM HEDENHAM.

*Norfolk Archæology, Vol. VI., p. 154-156.*

a wallet. In *Nichol's Progress*, mention is made of "a purse, such as factors do carry with them when they go to receive money."

The purse rests on a case, in which it was kept in the house. The vellum-bound volume alongside the purse

is an ancient manual of devotion, in an Eastern tongue. Two ancient deeds, with parts of seals attached, are of the thirteenth century, and appertain to Norwich affairs. One has relation to the quit claim of a messuage in the parish of St. Giles', Norwich, belonging to Katharine, wife of Wido, the cordwainer. The date of it is 44 Henry III. The larger one is an indenture dated 1285, between the Prior and Convent of Holy Trinity, Norwich, and the Master and Brethren of St. Giles' Hospital, Norwich.



TORQUE RINGS FOUND AT HEIGHAM.

*Norfolk Archaeology, Vol. VI., p. 215.*

The letters exhibited below are of interest, more for their autographs than for their contents. They commence with one bearing the autograph of Queen Mary, and end with one of William III. One of the two letters of the reign of Charles II. has relation to the examination of the Earl of Tweeddale, being signed by a number of Scotch peers, and the other to the granting of a pension to the Countess of Balcarres. To show how the memory of Charles

I. was enshrined in the hearts of the Royalists, we have here a memorial of the ill-fated king, fashioned in the form of a small bust of gold, kept in a locket of the shape of a heart. This was worn by some fervent adherent of the Royalist cause. It was found in the Castle Gardens a good many years ago.

Mr. Fitch was a great collector of seals and rings, and in the table cases will be seen a good representative collection of these, all briefly described. It will be seen that many of the seals are those of Norfolk religious houses and families, they being used as the authoritative signatures of individuals when, if written, they could not have been generally read. All kinds of rings are included in this collection, many of them bear mottoes, which are inscribed on the labels. Some are lovers' and others memorial rings. The large damaged seal in the corner of the case devoted to seals is that of the Prior and Convent of the Church of the Holy Trinity, Norwich Cathedral. It was found in the Wensum by a man employed in dredging the river, and got into the possession of F. W. Cotman, son of the artist.

In the case which contains the miniature portraits of Mr. Fitch, of his father, and of Mr. W. H. Stevenson, a Norwich author and antiquary, there is exhibited, with some curios and very remarkable rarities, memorial medals, etc., a gold Niello, found at Matlaske, Norfolk. It is a representation of the crucified Saviour, with the Baptist on one side, pointing with his right hand to the Lamb, the Agnus Dei, recumbent on the Book or Written Word, which he holds in his left hand; and with a Bishop, mitred, on the other side, bearing his pastoral crook, but with no attribute of any kind to designate him. The figures are surrounded by flowers and foliage of the most delicate and graceful

workmanship. The only other gold Niello, of which there seems to be any knowledge, is one found at Devizes. The name "Niello" is applied to this description of ornamental engraving because of the black (*niger*) background, but the object of the design is to represent symbolically the Golden Light of Truth revealed in the Darkness.

Very interesting is the series of table mats or roundles for cups, chalices, etc., displayed in the same table case. Each has painted on it a device of floriated design, and contains a motto, most of them being in rhyme.

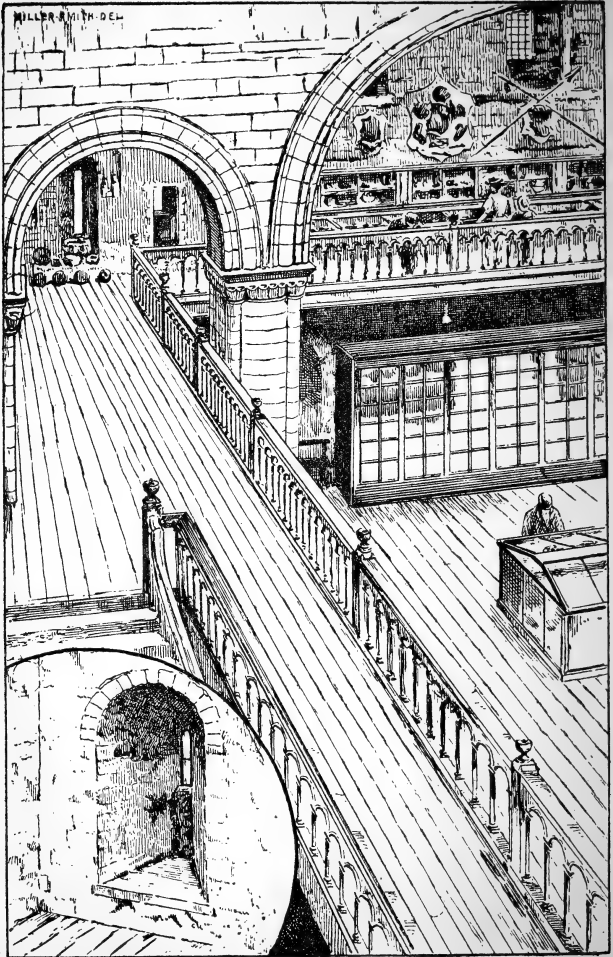
A case in the corner contains a miscellaneous collection of curios, including two excellent examples of small Roman lamps, a torque, crucifix, beads, silver shoe buckles, casket for perfume, and ladies' etuis for light articles of personal use. On the wall hangs a circular carved wooden cheese press, the central monogram being surrounded with the following marginal inscription, "An harte that is wyse will obstene from sinnes, and increas in works of God." The beautiful carved piece over the door is a representation of the story of Abraham offering up Isaac. The library cases are fitted with rare books on Norfolk history and topography, MSS. of Kirkpatrick and others, and the drawers contain a miscellaneous collection of antiquities and seals, also a local geological collection and other specimens.

### **The Keep, Antiquities, and Ethnology.**

Here we have the nucleus for a collection, to which additions are being frequently made, and the arrangement of which has not yet been completed. The objects on the floor of the Keep that first claim attention are two mummies from Egypt, one from Sakkara, pre-

sented by James Morrison, Esq., and the other from Ekhnim, presented by Colonel Haggard, the brother of the novelist.

In the beautifully-carved wainscot case presented by Mr. J. J. Colman, when Mayor in 1868, are exhibited some very rare books. Among them is a Wycliffe translation of the Bible in manuscript, each book commencing with an illuminated letter. This Bible has special interest, because it belonged to Sir James Boleyn, of Blickling Hall, the uncle of Anne Boleyn, the second wife of Henry VIII., whose life was so intimately bound up with the Reformation movement in England. James Boleyn was buried with great pomp at Blickling, in December, 1501. Below is a missal, according to the use of Sarum, printed at Paris, by William Morton, in 1555, and supposed to have belonged to John Still, Bishop of Bath, 1582-1607. Another Mass Book, according to the Sarum use, was printed at Paris, by Jehan de Pres. Alongside an illuminated MS. Book of Hours there is a MS. copy of the "Brut" Chronicle, a legendary chronicle that was written in the twelfth century, as may be seen from Wharton's *History of English Poetry*. A beautiful MS. copy of the Koran of Mahomet, from Constantine in Algeria, is also exhibited in this case. Below is a St. Alban's Book from the St. Alban's Press of the fifteenth century. There were eight volumes issued from that press, including Dame Julian Berner's *Book of Hunting and Hawking*; but this is the only perfect copy yet found of the *Antonii Andreae Questiones Super Logica*, A.D. 1481-2. Underneath is a Book of Legal Precedents of the time of Henry VIII. Several of these volumes come from the City Library, a large collection of ancient works belonging to the Corporation, and, kept apart in special cases at the Free Library. The *Opus*



INSIDE OF THE KEEP.

*Sphericum*, 1510, and other tracts, by Wynkyn de Worde, Richard Pinson, etc., are interesting examples of early printing.

Under the North Gallery is a handsome piece of tapestry, said to be of the time of Henry VIII., from St. Luke's Chapel, one of the apsidal chapels at the east end of Norwich Cathedral. Alongside it is a banner, displayed at the coronation of George II., by John Harvey, then Mayor of Norwich. This was presented by Major F. Astley Cubitt. Beneath the East Gallery is a series of four painted panels from the roof of the Jesus Chapel, in the Church of St. John Maddermarket, Norwich. They bear representations of angels bearing scrolls, inscribed with portions of the *Te Deum*. These are specimens of the kind of ornamentation employed in Norfolk Churches from Edward III. to Henry VIII., when there was a great deal of intercourse between East Anglia and Flanders. The brass below is to Robert Brown and Alice his wife. Brown was Mayor of Norwich in 1522, and died in 1530. The long table in front of these antiquities is a shovel-board, originally the property of the Pastons, and came from Oxnead Hall. At the beginning of the present century it was purchased from Oxnead and removed to the Black Lion Inn, at Buxton, where the game was played by the villagers. An account of the game, as given in Strutt's *Sports and Pastimes*, is affixed to the side of the board.

The Hawaian canoe, with outriggers and paddles, given by Mr. and Mrs. Armstrong, and the Canadian birch-bark canoe, with six paddles, presented by Mr. Wyrley-Wyrley Birch, represent somewhat primitive means of travelling by water surviving in modern times. An interesting collection of garments, made of fibrous grass, and a helmet of feathers, with specimens

of the weapons and fishing hooks used by the native Maories, now almost extinct in New Zealand, were presented by Mr. S. Culley, the City Accountant, who was in his young days an agent for the New Zealand Government. Elsewhere will be found a large collection of fighting clubs, a ceremonial adze, and various weapons, etc., used by the natives of the South Sea Islands, given by Lord Hastings.

In the Gallery at the head of the stairs there hang on the wall cases casts of engraved stones and electrotype copies of ancient coins from the British Museum. The engraved stones bear many of the mythological figures and emblems of ancient Greece and Rome. The coins and medals are those of Asia Minor, Phoenicia, Syria, and Egypt; of Northern and Central Greece, the Peloponnesus, etc.; of Italy, Sicily, the southern shores of the Mediterranean and Western Europe, at different representative periods. Behind the angle of the wall stands an ancient cannon, supposed to have been made not many years after the invention of gunpowder. This curious gun is supposed to have been cast in the fourteenth century. On a ledge, in the northern wall, stand some leaden jars that came from Langley Priory, near London, Norfolk. The large circular-hollowed stones form the upper portions of a series of querns or handmills for grinding corn. A fine old cauldron stands in an opening in the wall. On the walls of the Keep is a somewhat varied collection of armour, representing a period extending from the fifteenth to the seventeenth century. These are all well-mounted and so clearly labelled that they need no description.

The cases below the armour, on the north wall, contain, the upper, a grand series of sepulchral urns and ancient stone ware, and the lower an interesting collection of antiquities, ranging from the rude Celt of

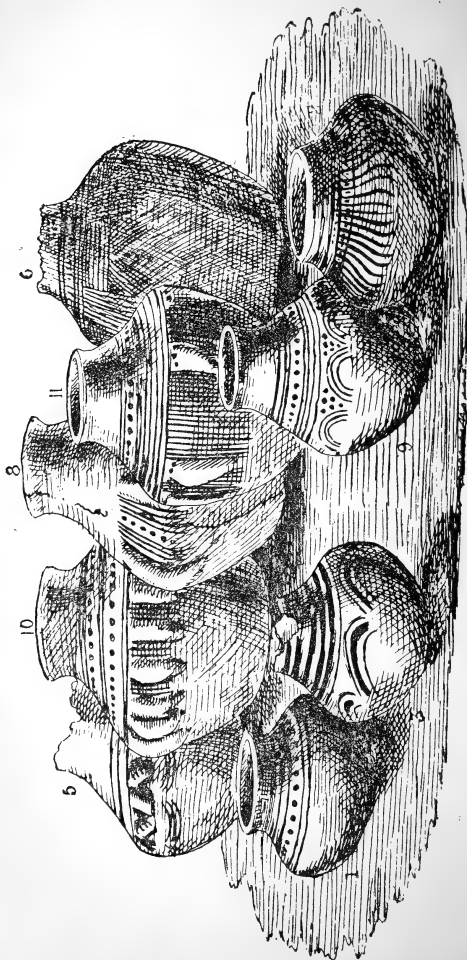


the Palæolithic man, who obtained his fire by friction, to the tinder-box which our grandsires used to strike a light. The urns are fine representatives of Roman, Romano-British, and Saxon sepulchral urns, some of them adorned with the chevron pattern. One was



ROMAN-BRITISH URN OF GREEN GLASS, FOUND AT  
GELDESTON, 1849.

dug up beneath the shop of Messrs. Chamberlin, in Norwich Market Place, along with some coins of the Emperors Claudius and Aurelius. The green glass urn found at Geldeston, near Beccles, in 1849, with a



ANGLO-SAXON URNS.

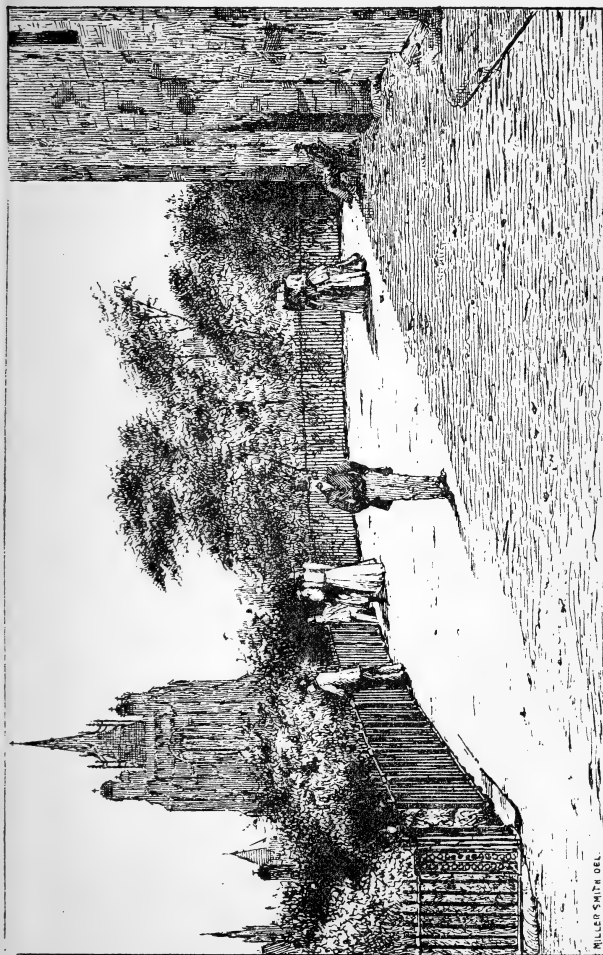
fragment of a bulla and some of the calcined bones of a child, is remarkable because of the character of the material. Special attention should be given to the Anglo-Saxon urns, as the collection is regarded as one of the best of the kind in the provinces. Most of these were found in East Anglia, where there were many barrows and tumuli to mark the sites of places of interment of the remains of notable Saxons. The long two-handled vessel of reddish clay, ending in a sharp point to be stuck in the ground, is a fine specimen of the Roman Amphora, generally used for the storage of wine, though they were sometimes utilised as cinerary urns. The urns found at Ashill, and presented by Mr. T. Barton, were discovered in making a cutting for the Swaffham and Thetford Railway.

An interesting collection of ancient drinking vessels is begun in the end wall case on the north side, and continued in the wall cases on the east side. These include many examples of early stone ware, including the curious two-handled drinking cups called Tigs, Bellarmine, gourd-shaped bottles, and the Pilgrim's bottle; besides leathern black-jacks, leather bottles, leather mugs, Flemish jugs, and wine bottles, or "decanter," of Lambeth ware. The wall cases, in continuation of the Bow and Fulham ware, contain some Etruscan, Pompeian, Peruvian, and Egyptian pottery.

But to return to the table cases. There is here, as in the Fitch Room, a fine representative collection of implements and weapons of the Palæolithic, Neolithic, and the Bronze Ages. In the case containing Neolithic implements, there are shown some obsidian cores and flakes from Mexico, to further illustrate the universality of the stone weapon at an early stage of civilization. With the bronze celts and implements

are associated two fine bronze swords, one found at Runimede. Following these prehistoric antiquities, there is a collection of Roman fibulæ, rings, etc., and another of Saxon antiquities, including beads and other articles used for personal adornment. A crystal ball, which was used as a kind of talisman in Saxon times, and even later, is placed near an enamelled gilt copper dish of Limoges of thirteenth-century work. Etruscan and Grecian Pottery, bronze lamps and figures from Pompeii, a mould for casting Pilgrim's badges, found at Walsingham, which was famous for its shrine, and a large collection of ancient keys, including a gilt key, the badge of office of the Lord Chamberlain, and some quaint locks, are arranged in the succeeding cases, with old stirrups, spear heads, and a sword of the time of Edward I., dredged up in the Wensum, at Thorpe. The ball-like hollow ornamented pieces of metal, one of which dug up in St. Augustine's Parish, Norwich, are supposed to have been the weights of a mediæval steelyard. Two objects are worthy of special attention, and require some notes of explanation. One of these is the Clog Almanac, and the other the Exchequer Tally.

Seals and rings are further represented in these cases. In that at the end is a badge with cross and garter of Sir Robert Walpole, of Houghton Hall, Norfolk; a glove found at Paston Hall, the seat of the Paston family, whose "letters" are historically famous; and an interesting miniature portrait of Oliver Cromwell, said to be by Cooper, lent by the Carter Trustees. This is one of the finest known portraits of the Great Lord Protector, and belonged to his granddaughter, whose husband, Nathaniel Carter, left a sum of money to his poorer relations. This portrait was handed down, with the money, which went to the



TERRACE WALK SURROUNDING THE KEEP.

Carter branch. Not the least interesting objects in this case are a tinder-box, with sulphur-tipped pieces of wood, used previous to the introduction of the lucifer match, Battersea enamel boxes, and a huge tortoise-shell comb, worn by ladies early in the nineteenth century. The fragment of bunting in a small special case, is a portion of the flag of Nelson's ship, the *Victory*. There hangs on the wall the facsimile of a brass from St. Clement's Church, Norwich, put up there to Margaret Pattwode, widow, 1514.

In the table cases, on the east side, will be found a curious alabaster basso-relievo, representing the martyrdom of St. Erasmus, much defaced, but bearing some significant features. The Saint is represented as being disembowelled in the presence of the Emperor and his attendants. The second figure engaged in the torture is turning away his head as if sickened with his task. Associated with this piece, when found beneath the floor of Buckenham Church, Norfolk, was the early gilt and enamelled and once finely-jewelled double cross and crucifix, contained in a case above. Close by is a moulinet or windlass, for stringing the cross-bow, some Russian ikous, a portion of a triptych, in the Byzantine style of art, together with an example of Faenza ware of the sixteenth century. The Holkham sheep-shearing cup is one that was given in 1805 to a farmer, a tenant on the Holkham Estate, by Thomas William Coke, for improving the breed of sheep. Thomas William Coke, first Earl of Leicester, gave an extraordinary stimulus to Norfolk agriculture. The electrotpe rose-water dish is a replica of the silver-gilt salver presented to the Norwich Corporation by the Hon. Henry Howard, in 1663. In these cases are also some interesting examples of engraved copperplates, several ancient carvings, and some specimens of Buddhist and Pali literature,

written on leaves of plants, and held together in long narrow wooden covers. On the floor beneath these cases will be noticed a standard Winchester bushel measure of the Tudor period, and in the wall cases are smaller standard measures of a like date, that belonged to the Norwich Corporation.

A curious vase or urn, reminding one of the simile that man is like a potter's vessel, is the Igacaba of the Muros Indians, from Manaos, South America. Human features and limbs are being developed, as it were, out of this urn, that was used for sepulchral purposes. Against the wall are models, one of a handsome monument to the Marquis of Ormond, and the other of a Burmese priest's house. The cases on the south side contain a remarkable collection of feather ornaments, articles of apparel, implements and utensils from Brazil and the region of the Amazon River in South America, most of them the gift of Mr. William Wethered. But at the time this edition of our guide is being issued, the arrangement of the antiquities and ethnological specimens is far from complete.

### **The Dungeons.**

In the centre division of the basement of the keep will be found a relic of the past in the form of a "Yarmouth cart."

In the glass cases round the walls are a large number of fossils from the pre and post-glacial formations, the bulk of them consisting of Mammalian remains from the Forest-bed ; but there is one case of chalk fossils, part of the Rose collection. The contents of other cases are of a miscellaneous character. In September, 1839, the minute book of the Museum states that "Mr. Stark had most handsomely offered

to present to the Museum his Phrenological collection" comprising, amongst others, "original casts of Oliver Cromwell, Pitt, Voltaire, Sir Isaac Newton, The Right Hon. Edward Burke, besides those of many other illustrious men; also casts of the heads of



YARMOUTH TROLLEY CART.

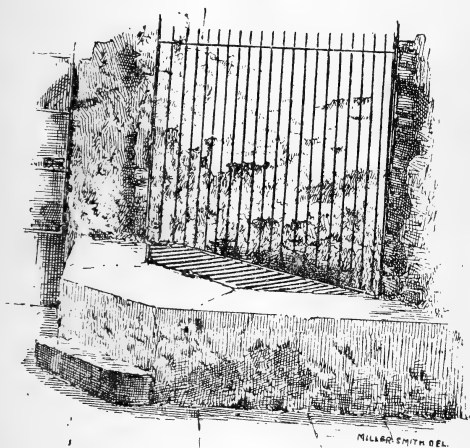
*From Falmer's "Perlustration of Great Yarmouth."*

several murderers, idiots, etc." This ill-assorted group will be found in one of the wall cases. The chief additions which have since been made appear to be the effigies of those who have attained an unenviable celebrity by (to use a significant expression) dying in their shoes.

The old well, 115 ft. deep, which supplied the Castle with water, will be noticed in close proximity. There is still a good supply of water, and it was used during the alterations in the Castle. When discovered it was quite filled with débris, but nothing of interest was found in clearing it out.



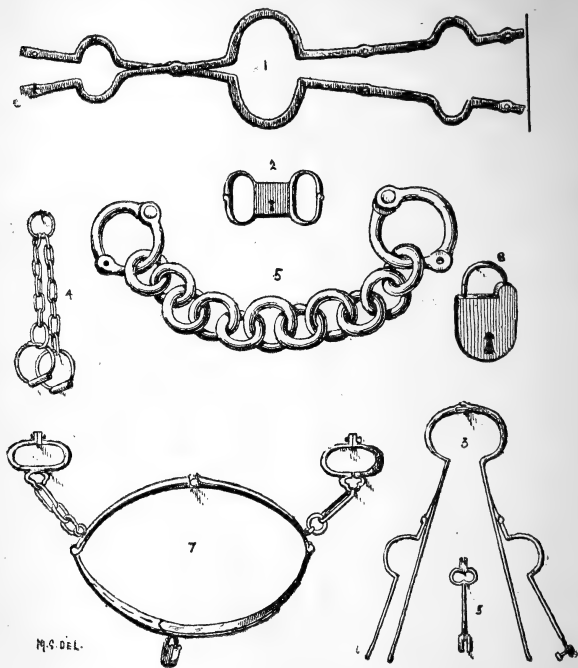
Passing through an opening in the party wall by the side of this ghastly-looking collection, we enter a square room, which was probably used as a dungeon, and has most appropriately been selected for the exhibition of a large number of manacles and fetters of various description, which were handed over by the Prison Commissioners to the City authorities when



THE CASTLE WELL

the transfer of the Castle took place. These consist of chains of various weights and patterns, some very heavy, intended for the legs and arms of prisoners; waist-belts, some of them with short chains attached, ending in handcuffs for confining the hands as well (Fig. 7); handcuffs of various patterns, some designed to hold both wrists; manacles formerly used in the prison (Fig. 2); terrible iron bars, jointed at

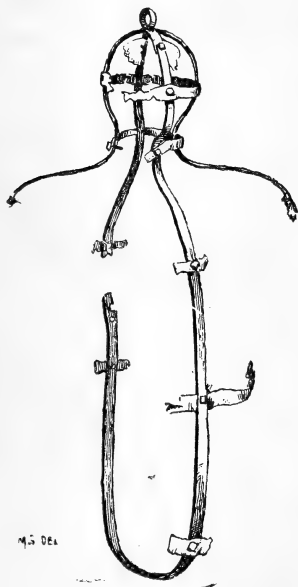
one end like the legs of a pair of compasses, which, when closed, left three circles, one to hold the neck, the other two designed to confine the wrists as in a Pillory (Figs. 1 and 3), the arms in one being held



INSTRUMENTS OF TORTURE.

in an elevated position level with the shoulders. These fearful fetters weigh 32 lbs., and their use must have been attended with extreme torture to the wearers. There is also a short-legged fetter

(Fig. 5), consisting of only the two anklets and eleven links, which weighs 17 lbs. These and many others bear witness to the severity of the discipline inflicted in the prisons of this country, almost within the lifetime of the present generation. The late Mr. Haggard, who, when chairman of the Visiting



GIBBET IRON.

Justices, was applied to for the loan of these instruments of punishment for exhibition, accompanied his consent with an expression of the hope that the borrower would "improve the occasion" by "making it understood by the public that the *utility* of their exhibition is to exemplify the more humane system of

punishment existing now to what then used to be." "It can hardly be conceived," added Mr. Haggard, "that *within this present century*, such a thing should have occurred, as a man being left to hang in chains on a village common, as occurred here [East Bradenham], and last year [1882] we found in the ground, near the stump of the gibbet now remaining, the cage in which he was suspended, and part of the skull remaining in it." The ghastly object to which Mr. Haggard refers will be seen in a glass case in this chamber of horrors, and in the same case is also the head portion of a similar gibbet-iron, used in suspending the murderer Cliften on Badley Moor, March 26th, 1785. The last time this disgusting practice was carried into effect was in 1834; but in the same year it was abolished by Act of Parliament. Previous to that time the country was studded over by these human scarecrows.

Indications of weary hours passed by prisoners in this dismal dungeon will be seen in the rude scratchings and sculptures on the stones where apparently the scanty light which alone illumined this dreary abode was admitted.

### The Murderers' Graves.

From the prison to the grave in former times was too frequently the last short journey of many whom now we should consider as by no means past the hope of reform. Accordingly just outside the Castle, but within the enclosure, embedded in the west wall, will be observed fifteen tablets, bearing the initials of seventeen murderers of both sexes, with the dates of their executions, marking the spots in which they were interred, and with this melancholy exhibition, we will end our description of the Castle Museum and its contents.



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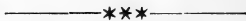
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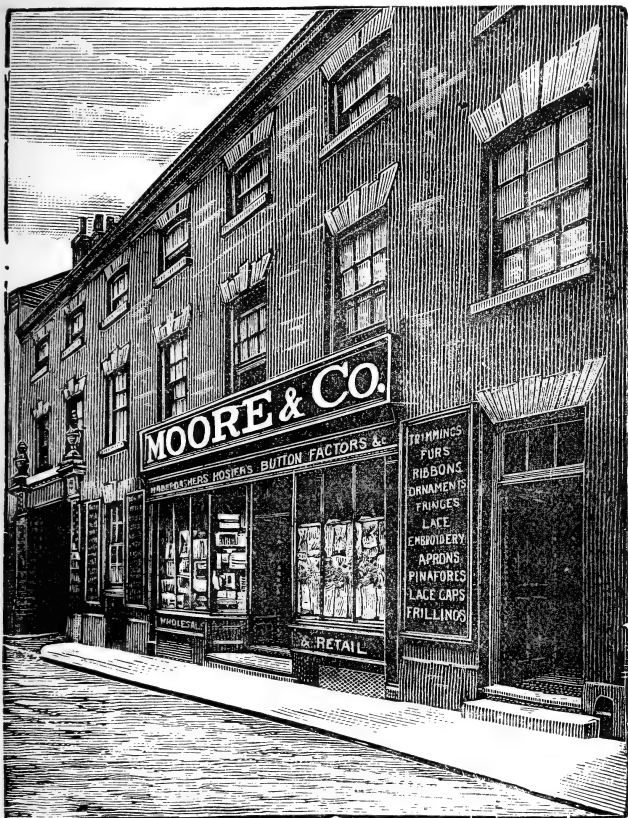
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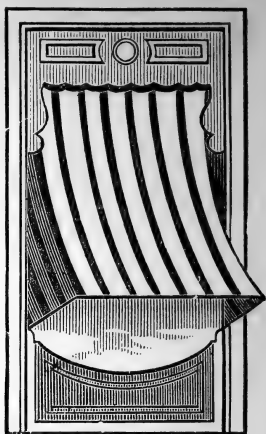
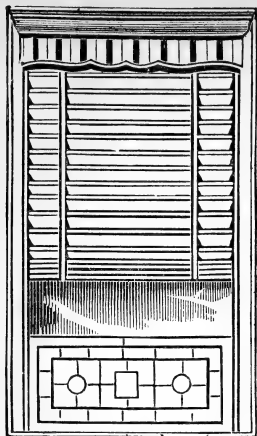
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